Number 4
Volume XLVII

JULY, 1914

$3.00 with Directory

TEXTILE WORLD RECORD

SPECIAL FEATURES

How the Underwood Tariff is Affecting American Labor

British or American Bunting for Our Flag

American Flax Culture

Installing a Cost System

Finishing Silk Hosiery

Building Worsted Tubes

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F. HERRICK

LORD & NAGLE COMPANY, BOSTON, MASS.

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The TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

BUILDERS OF

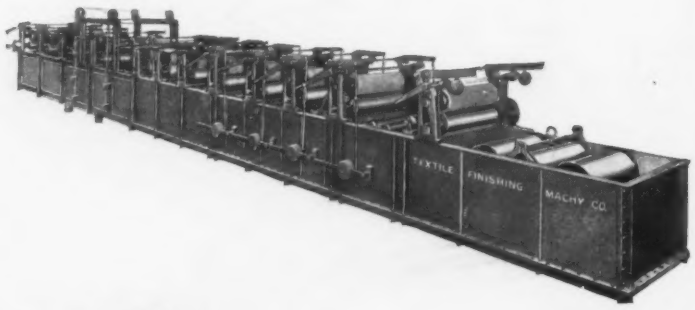
Singeing, Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Machinery

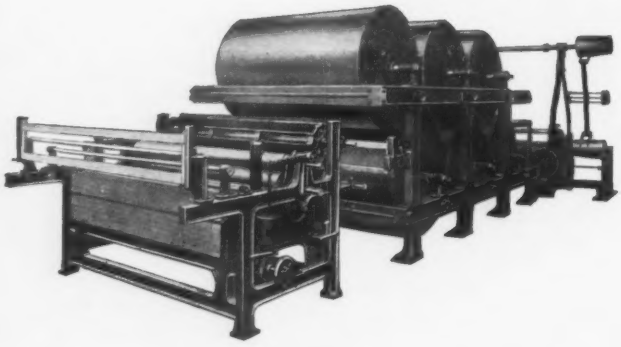
FOR

TEXTILE FABRICS AND WARPS

Plans and Estimates for Complete Plants

Warp Mercerizing Machine

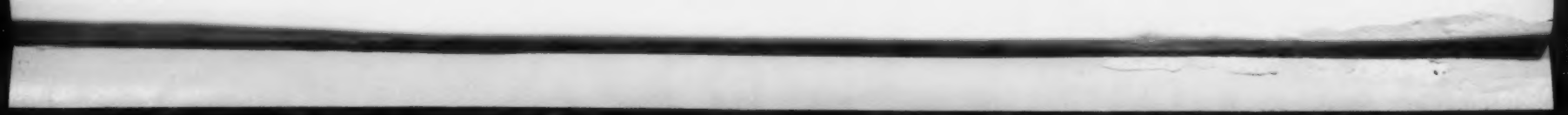


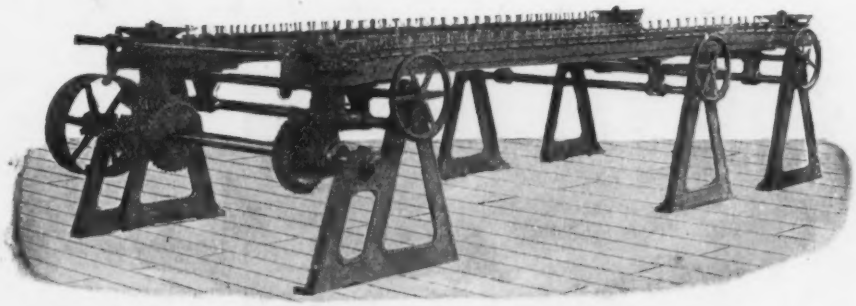


Carpet Yarn Sizing, Drying and Beaming Machine

SOLE BUILDERS IN UNITED STATES OF
SPENCER'S IMPROVED SKEIN MERCERIZING MACHINE

Mercerizing Machinery for Cotton Goods and Warps





STRAIGHT AUTOMATIC TENTERING MACHINE

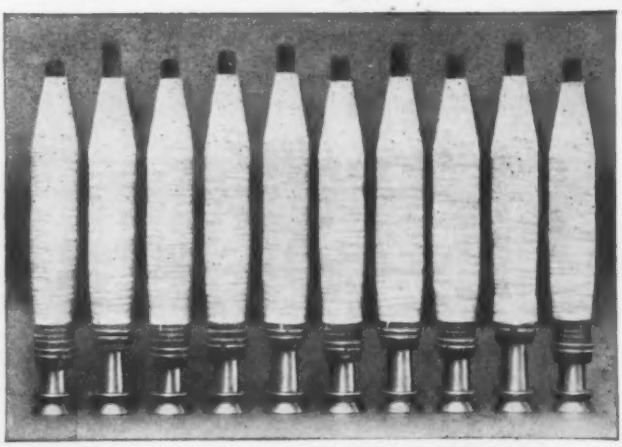
Dyeing, Bleaching, Drying and Finishing Machinery

for all textile fabrics.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

Providence Office, Room 417 Industrial Trust Building.



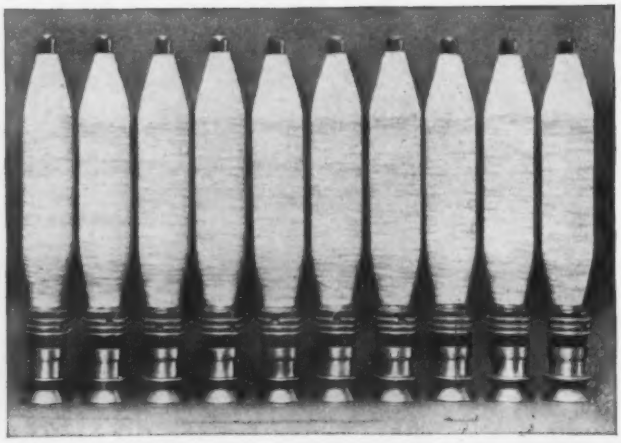
WHY

have the bobbins on your frames vary in height

WHEN

by using Rabbeth Patent Centrifugal Clutch Spindles they would Stand at one level and carry at least ten per cent. more Yarn

?



DRAPER COMPANY

HOPEDALE MASS.

THE BEST

NORTHROP LOOM BOBBINS

AND

SHUTTLES

ARE MADE BY

Northrop Loom Manufacturers

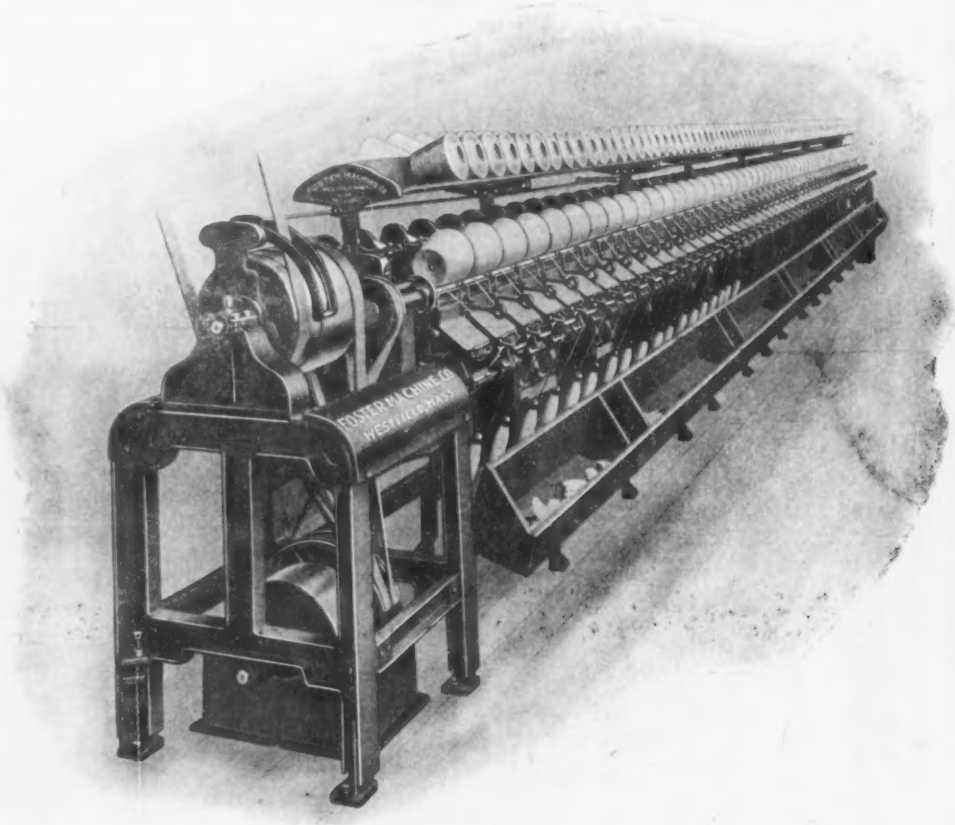
Look for our name on your Bobbins and Shuttles

DRAPER COMPANY

Hopedale Mass.

J. D. CLOUDMAN Southern Agent 40 So. Forsyth St. Atlanta Ga.

Foster Machine Co.



The Foster Model 12 differential attachment spaces the yarn on the cone in winding so as to secure in the Knitting process a light unwinding tension that does not change from start to finish of cone. ¶ This is *one* of the exclusive features that has made the Foster Finished cone acceptable to all Knitters.

Office and Works

Westfield, - - Massachusetts

John Hill, So. Agent, Third National Bank Bldg., Atlanta, Ga.

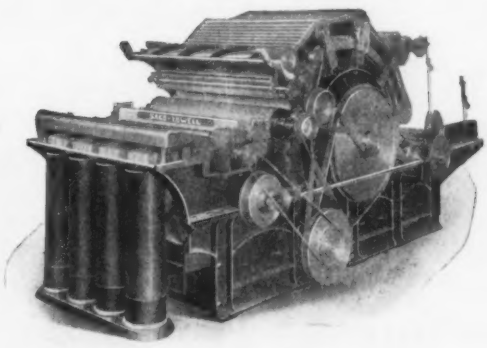
Saco-Lowell Shops

TEXTILE MACHINERY

WASTE RECLAIMING MACHINERY

COMPLETE COTTON MILL EQUIPMENT

Including:
Pickers
Cards
Drawing
Evener Drawing
Roving
Spinning
Twisters
Slashers
Spoolers
Reels
Winders
Warpers
Looms



FOUR COILER FRONT CARD

Used in connection with our **WASTE SYSTEM**

WORSTED MACHINERY

Including:
Revolving Creels
Gill Boxes
Drawing Frames
Reducing and Roving Frames
Cap Ring and Flyer Spinning and Twisting Frames
Jack Spoolers

THE RESULT OF OUR LONG EXPERIENCE AND STUDY UNDER ACTUAL MILL CONDITIONS ENABLES US TO BUILD MACHINERY WHICH SUCCESSFULLY MEETS THE VARIED REQUIREMENTS

Shops—
Lowell, Mass.
Biddeford, Maine
Newton Upper Falls, Mass.

Executive Offices—
77 Franklin Street,
Boston, Mass.

Southern Agent, ROGERS W. DAVIS,
Charlotte, N. C.

LEIGH & BUTLER

SUCCESSORS TO

EVAN ARTHUR LEIGH

232 Summer Street opposite the South Station), Boston, Mass.

SOLE AGENTS

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen & Worsted Machinery

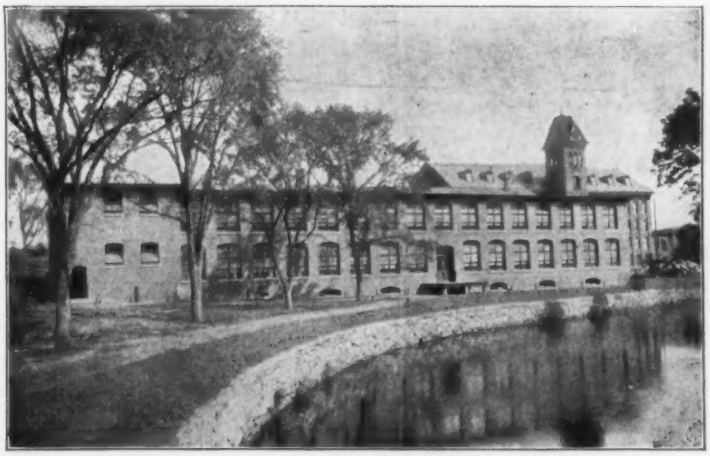
Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber—will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Wastes into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery

Archbutt-Deeley System for purifying and softening water.

JOSEPH SYKES BROS. Card Clothing for Cotton.
JAMES CRITCHLEY & SONS. Card Clothing for Woolen and Worsted.
WILSON BROS. BOBBIN CO. Bobbins, Shuttles, Etc.
THOMAS B. HAIGH. Double Loop Bands, Spinning Tape, Etc.
DRONSFIELD BROTHERS. Grinding Machinery and Emery Filleting.
HARDING'S Fallers, Pins and Circles.
The Best French and English Combing and Rubbing Aprons.
Card Flats reclothed and Lickers-in rewound.



Read what a very prominent Consulting Engineer, investigating a CARRIER EQUIPPED mill, reported to his client about the conditions when the outside temperature was 94°:

"I heard from three different sources the story in regard to the conditions during the excessive heat in July, 1911. All the other textile mills in Holyoke had to close as the help were overcome by the heat, but this mill continued running throughout the whole spell.

"Yesterday the overseer of the spinning mill stated that he would far rather be in the mill than either out-of-doors or at home, as the temperature was some 8 to 10 degrees lower in the mill than outside."

"The most noticeable room which we went into in the way of clearness of air was the spinning room of this new mill. This was located in the fourth story and there were practically 20,000 cap spindles in operation. The readings for the temperature and humidity in this room are taken from here and following is a list copied from their records of yesterday, which shows very even running, both for the temperature and amount of humidity."

JULY 10

Hours	Temperature	Humidity	Hours	Temperature	Humidity
7	87	63	12	88	67
8	86	66	1	87	66
9	86	66	2	89	67
10	87	66	3	87	65
11	88	67			

WRITE FOR A CATALOG

Carrier Air Conditioning Co.

Of America

No. 39 Cortlandt Street, New York City

BUFFALO, 490 Broadway

NEW ENGLAND
176 Federal Street
Boston, Mass.

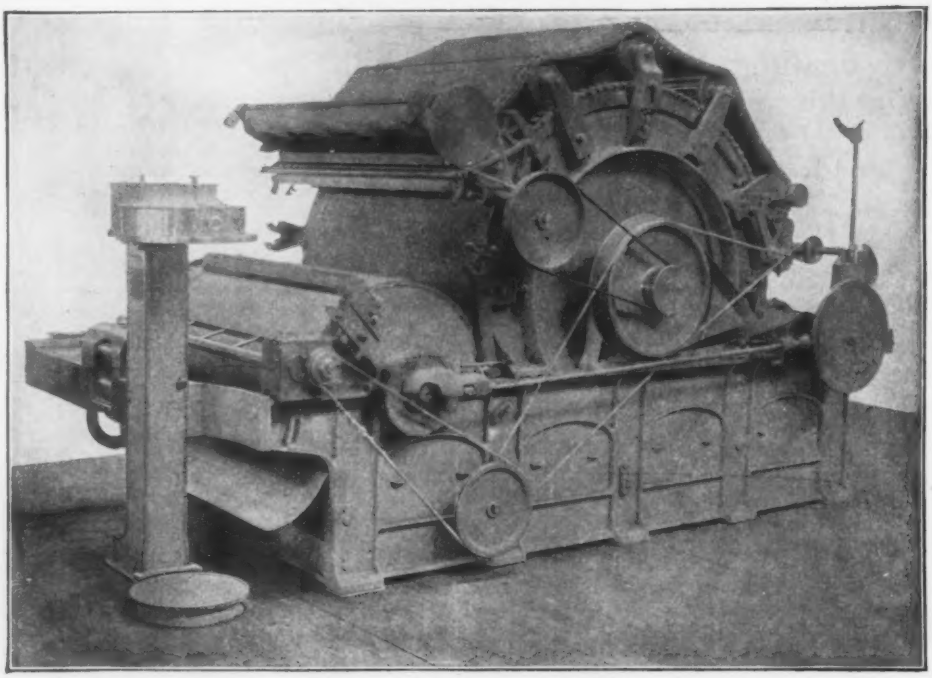
CHICAGO
Ft. Dearborn Bldg.
Clark and Monroe Sts.

PHILADELPHIA
734 Real Estate Trust Bldg.

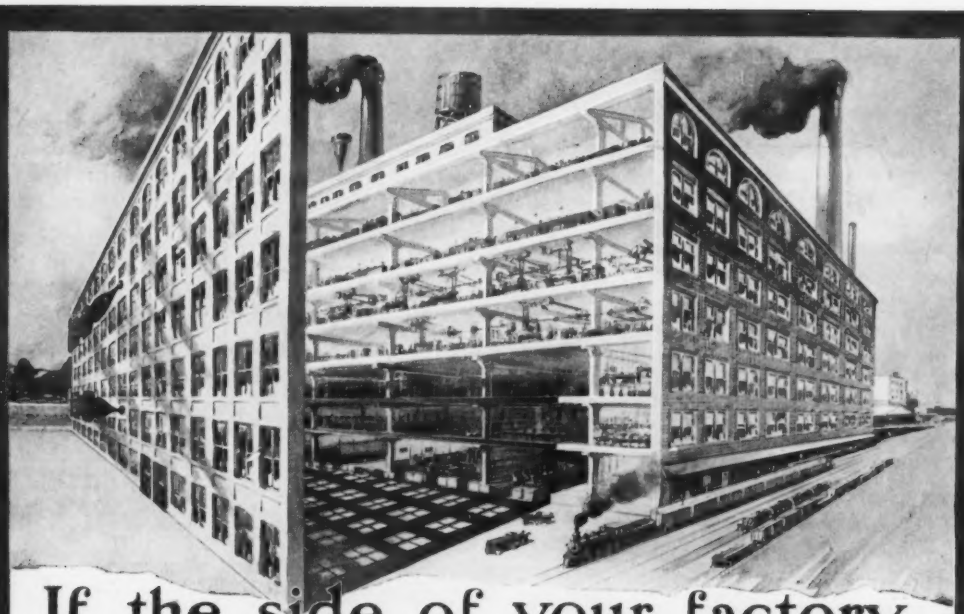
MASON MACHINE WORKS

Taunton, Mass. **Greenville, S. C.**

Builders of
Revolving Flat Cards, Drawing Frames,
Spinning Frames, Looms, Dobbies, Etc.



Superior Loom Cranks for Repairs



If the side of your factory were a great door ———

You could swing it open and gain perhaps a solid hour of extra daylight. You can get 19 to 36 per cent more light by simply painting your ceilings and walls with

RICE'S MILL WHITE

Rice's Mill White is the only oil paint (without varnish) giving a glossy, tile-like finish. It will not collect dirt and germs like a flat paint. It will not scale like a cold water paint. It will not "alligator" and crack under the jar of machinery like a varnish paint. ***It stays white longer than any other gloss paint.***

Rice's Mill White, the original Mill White, made a trade name of the words "Mill White." It has no substitute. No other paint manufacturer can use the Rice process. No imitation has its elastic, permanent qualities. For ten years it has been unequalled for illuminating power, sanitary qualities and low ultimate cost.

Write for Booklet and Sample Board

Ask for our booklet, "More Light". *Write today.*

U. S. GUTTA PERCHA PAINT CO.
20 Dudley Street Providence, R. I.

Parks' Piping Parables

The Tea Kettle's Secret

For years on end—for centuries—men saw the kettle boil; saw, at times when it boiled too intensely, that the spout would not carry off the vapor fast enough and the lid would dance a folk-dance on the kettle's north pole.

A dreamer whose mother even flouted him because of his lack of the practical, harnessed that force and put it to work.

The nineteenth century became the age of steam, and Dillon builds boilers—and Fosdick engines—and Parks does piping as the result of a dreamer's fancy of a century ago.

Today we are supplementing that steam power by harnessing the streams to satisfy man's incessant demands for more power—more power that man (and woman) shall be less of a machine.

The water that Boston people drink performs a double function by first turning turbines up in Clinton and transforming the potential energy of an artificial lake into the kinetic energy of humming motors.

The twentieth century is fast becoming an age of electricity.

One of the greatest sources of waste in manufacturing has been the transmission of power from the place where it was made to the place where it was used. Turning power around a corner costs money.

In the early days of steam power—and down to within a comparatively short time—it was customary to stick in boilers here, an engine there, in small groups and small units.

Then came a change.

The advantages of mass production were carried to the power plant. Manufacturers began to see that aside from their own product they were manufacturing power—and cheaper power became their hobby.

So engines were made in larger and larger units—and compounded doubly, triply and quadruply. Boiler units were made larger and pressures increased. Engineers studied the problem of centralization.

All for cheaper power.

In riding a hobby we are apt to overlook something, and this instance is no exception.

One thing to be reckoned with was the cost of turning the power around the corners—or of transferring it to the place where tt could be used. I knew of a factory where eighty per cent of the power generated was used to turn shafting, and only twenty per cent went into actual work delivered at the machinery—or about two per cent of the coal pile. But the electrical engineer has not been sitting still. One new condition breeds another, and he has helped solve the problem of delivering the power to the machine.

But in riding the hobby of cheap power, there was another thing that the engineers reckoned without; that economy in prime movers may be non-essential if there is a continuous use for steam for manufacturing purposes—particularly such steam suckers as drying and dyeing.

I am writing this not because I have any quarrel with the development of hydro-electric power. On the other hand, we have recommended it several times. But—we do say, before you enter into a contract first see if yours is really a plant that can use it economically—and then balance your power with your requirements for steam manufacturing.

Heat Your Mill with Your Sprinkler System

and conversely—sprinkle your mill with your heating system. If you are building a new plant of any size you may accomplish this.

You will save money in first cost over the usual method of separate heating and separate sprinkling apparatus.

You will save space. Better than all that, you will save in fuel;—that is, the new combined system will cost less to operate.

This system is not adaptable to every mill condition—but where it is adaptable it makes a very favorable showing in the points above mentioned.

Write us if interested; we can only tell you how much you will save by figuring it out.

PARKO

The G. M. Parks Company, Fitchburg, Massachusetts

The Turbo Catechism

Pertinent Answers to Queries of Mill Men

Who invented the Turbo-Humidifier?

Mr. Albert W. Thompson, a practical mill man.

Why did he do this?

He thought he saw deficiences in all of the then existing methods of humidifying.

What was the result?

He solved the problem of complete vaporization of water by mechanical means which obviated many of the accessories heretofore thought necessary in humidifiers.

How did he do this?

By the application of compressed air in a new way.

Then the Turbo is an atomizer?

No, quite the reverse, as an examination will show.

Is the use of air in the Turbo way more efficient than in the atomizer way?

Yes. Very much so. It takes about four atomizers to do the work of one Turbo at a very much greater expense of power.

Then the Turbo will work in a card room or napper room?

Yes, because the lint and fly do not interfere with its operation.

Could you install the Turbo in a low posted room?

Yes, very decidedly, on account of its small size.

Then the Turbo is very small?

Indeed it is. We could bring a half dozen to you in our pocket, and on this account you will find when installed it casts no disagreeable shadows on the work.

You say that the Turbo has solved the problem of complete vaporization. Then it uses the water but once?

Yes, and pure water at that. We believe "breathing water" should be as pure as drinking water.

Then the Turbo has no return system of piping?

No. No drains to get clogged and no receiving tanks to clean out.

Then this type of humidifier removes all need for casing?

Yes, there are no casings or fans, no motors, no moving parts, no cloths or mantles, no cleaning mechanism.

Then the Turbo works under a pressure system?

Yes, Pressure of air, but there is no pressure on the water. The water simply flows to the heads and is picked up and vaporized by the air pressure.

What happens if the head stops for any reason?

It simply becomes in-operative. A new head may be attached in place of an old one in less than five minutes by a greenhorn.

But this type of head will not "wash" the air will it?

No, but it obtains nearly the same results by preventing the formation of lint, and so far as air washing is concerned, the scientific way to do this is all in one place, not at each humidifier head where all material washed from the air becomes a menace to the system, due to clogging the return pipes.

Is it safe to start the Turbo-Humidifiers in a mill early in the morning before the help come in?

Yes, because there is no danger of a clogged return pipe causing heads to over-flow.

Then your head will not cause damage by over-flow of water?

It cannot.

You say the Turbo works by compressed air?

Yes, and this gives an auxiliary in the shape of an air cleaning service that is much appreciated and much used.

Is this expensive?

The Turbo system at 30 pounds air pressure will be found in a term of months cheaper to operate than any other system, if horse power plus man power are considered; and mill men now consider the two problems as co-incident.

Will the orifices of the Turbo head enlarge?

Possibly, in time, but in five years we have had to furnish no repair parts on this account.

How long has this head been on the market?

Something over five years.

Has this humidifier become recognized during that time?

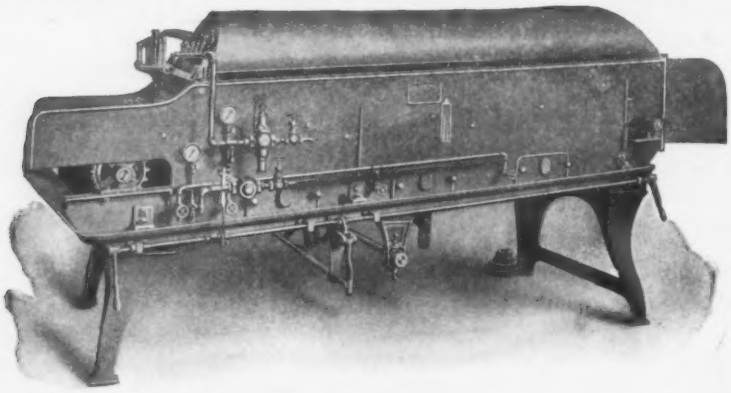
We think so. There are 23,090 Turbo heads in operation in 153 factories; 35 of these factories previously had some other system of humidifiers. Without counting small additions of a head or two, 27 factories have given us actual bona fide "repeat orders" of systems. We do not call it a repeat order if a few heads are added here and there to an old system.

The G. M. Parks Company, Fitchburg, Massachusetts

Southern Office, 200 Commercial Bank Building. J. S. Cothran, Mgr.

The Yarn Conditioning Machine

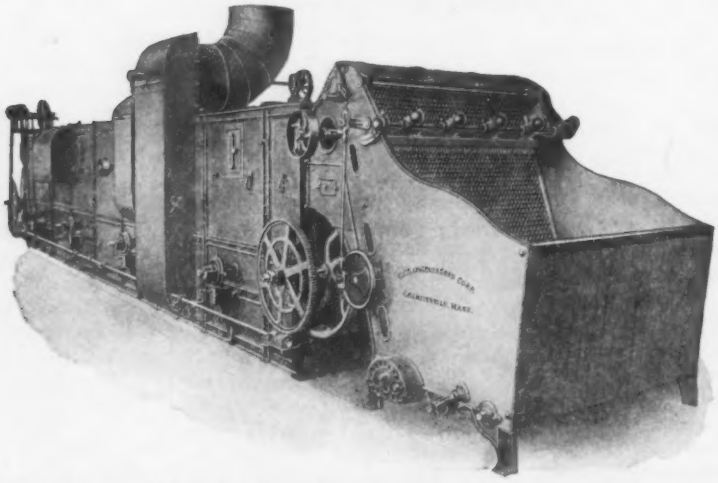
Sets the twist in your filling and overcomes kinky filling difficulties. It conditions without injuring the bobbins



The Sargent Drying Machines

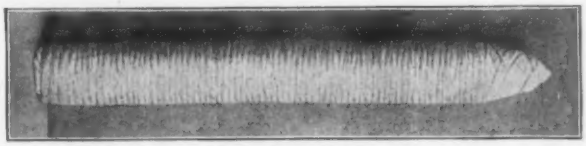
Metal Construction
Asbestos Insulation

Scientifically designed for greatest economy in drying Cotton, Wool, Hair.



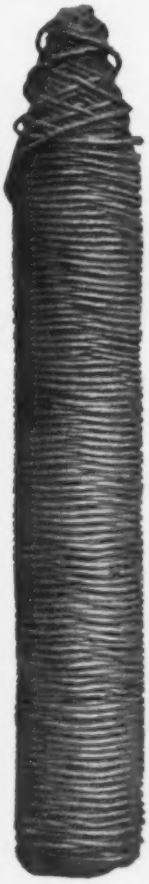
Wool Washers, Wool Dusters and Openers, Burr Pickers
Complete Carbonizing Plants
Automatic Feeds for Cotton and Wool

C. G. Sargent's Sons Corp., Graniteville, Mass.

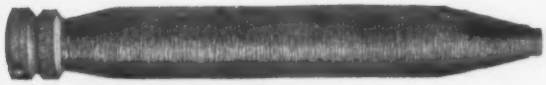


No. 2

No. 1 and No. 2—Cops to weave from inside seven-eighths to three inches diameter and up to seventeen inches long. Suitable for various kinds of coarse goods such as grass matting, cotton bagging, cocoa matting, all kinds of carpets, felts, chinchilla, linen, jute, flax, asbestos, hose and narrow fabrics such as wicks, belting, webbing, surcingles, halters, etc.



No. 3 and No. 4 Shuttle Bobbins from seven-eighths to two inches in diameter and any length up to twelve inches. Suitable for all kinds of duck, upholsteries, tapestries, asbestos, ratana or any kind of fancy yarns for automatic or other looms.



No. 1 No. 4 No. 3

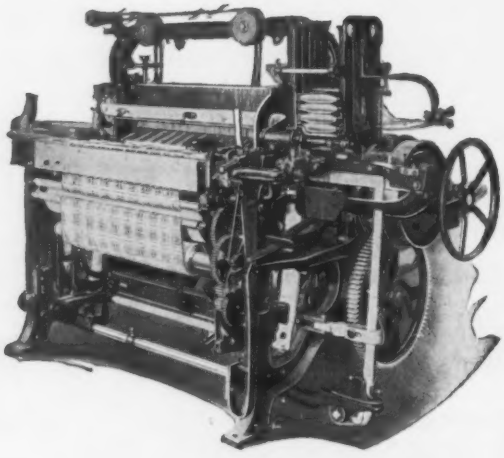
OSWALD LEVER CO., Inc.

Lehigh Avenue and Front Street, Philadelphia, Pa.

Builders of Textile Machinery

WINDERS ESPECIALLY

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

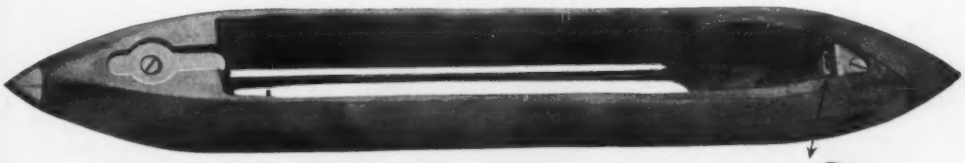
WORCESTER, MASS.

Providence, R. I. **Philadelphia, Pa.**

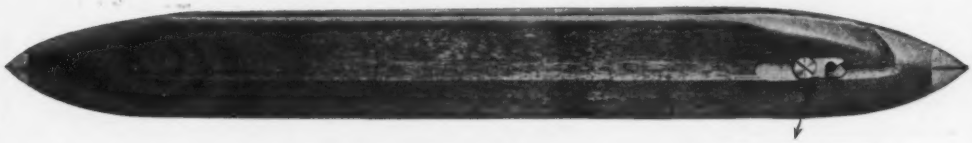
Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

New Hand-Threading Shuttle

The Caron Patent Hand Threader



This "THROAT PLATE" (slightly enlarged) is so designed that the Yarn *cannot "Balloon"*



This "SIDE EYE" (slightly enlarged), made in two parts, *prevents unthreading.*

The Simplest and Most Quickly Threaded Shuttle Made

It can be filled with the finest silk or the coarsest filling—will neither *unthread* nor "*balloon*"—lint that accumulates is easily removed—felt can be inserted for tension purposes—and being a hand-threading shuttle, it is sanitary.

This shuttle is entirely different from all others. It has been severely tested for a year by large mills and is the most effective hand threader on the market.

Trial orders solicited—Satisfaction guaranteed

Paper Cop Tubes Cones and Shells

Send your samples and we will quote prices on any lot desired

Shuttles and Shuttle Irons

For All Textile Purposes

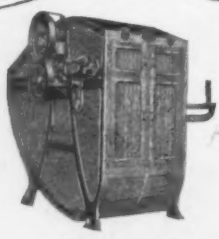
American Textile Specialty Machinery Co.

670 Eddy Street - Providence, R. I.

13th St. and Boulevard, Long Island City

The Hunter

NO. 10
FULLING
MILL



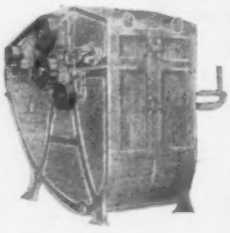
DRIVING SIDE

GEAR DRIVE

CLOTH WASHERS

PEICE DYE
KETTLES

SOAPING
MACHINES



BELT DRIVE

ROPE DRIVE

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

ECONOMY AND SAFETY

YOU GET BOTH WITH

"Hurricane" Machinery

FOR

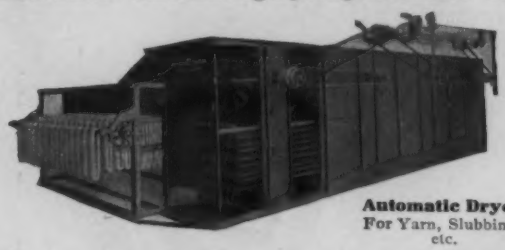
HOSIERY
SKEIN
YARN
SLUBBING
etc.

The best and mosteconomical Dyeing Machines

BETTER DYEING at LESS EXPENSE

Give us an opportunity to prove our claims

"Hurricane" Circulating Dyeing Machines are built in various sizes and types



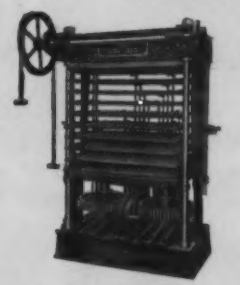
Automatic Dryer
For Yarn, Slubbing, etc.

Complete Equipments for

Dyeing
Scouring
Bleaching
Carbonizing

FIRE-PROOF DRYERS

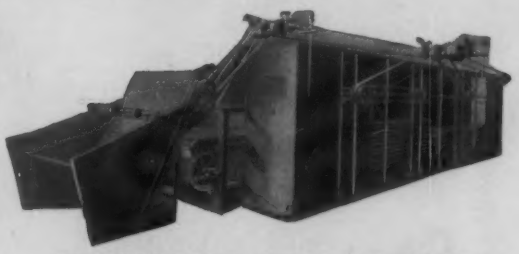
STEEL CONSTRUCTION
INSULATED WITH ASBESTOS



Power-Screw and Hydraulic
PRESSES

Fans

Motor and Belt Driven



AUTOMATIC STOCK DRYER
(With Sectional-Continuous Conveyor)
For Cotton, Wool, Hair, Rags, etc.

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works: 6721 Germantown Ave., Phila., Pa. **Boston Office: 53 State Street**

HESS-BRIGHT

What is Required to Make a High Grade Ball Bearing?

A high grade ball bearing demands that all of its parts, namely, the races, the cage and the balls, shall be composed of the finest material and made with the utmost precision and accuracy.

In other words, the value of a ball bearing is in direct ratio to the accuracy attained in the manufacture of its component parts and the suitability of the material entering into them.

Every part of a Hess-Bright (HB-DWF) Ball Bearing is manufactured in our own factories

Write us now, if interested

The Hess-Bright Mfg. Company
PHILADELPHIA, PA.

Stores for retail distribution

New York, 1974 Broadway Chicago, 1800 Michigan Ave.
Philadelphia, 666 North Broad St.

THE FEDERATION OF TRADE PRESS ASSOCIATIONS

WILL HOLD ITS

ANNUAL CONVENTION

At The
Congress Hotel
Chicago

Sept. 24, 25, 26
1914

HERE you will rub shoulders with the publishers of trade, technical and class publications, financiers and public men—men who are vitally interested in business building through the business press. You will mingle with the men whose business interlocks with your business, who are meeting with problems with which you constantly contend. And you will hear them tell about their methods of solving these problems.

One Good Idea Will More Than Pay for All the Time and Expense of Attending this Convention

MANY of the ideas promoted by these business men can be efficiently applied to your business. A single new idea may revolutionize a selling plan or an advertising campaign. At least this meeting will keep you in touch with the trend of modern business thought. Come, if you are a Publisher. Come, if you are a Manufacturer. Come, if you are an Advertising Man. Come, Mr. Business Man. There will be plenty of accommodations and interest for all.

NO city in the West offers so many advantages for sightseeing and pleasure as Chicago. Lake Michigan with its excursion boats, beaches and cool breezes; scores of leading theatres and hotels; fine parks and boulevards, art galleries, public libraries and art museums which rank among the best, are merely a few of the possibilities of diversion and education.

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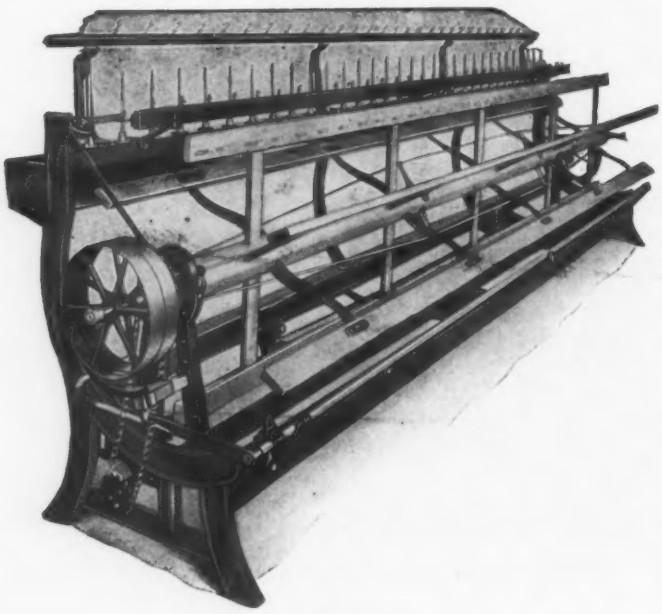
Cotton Machinery by Specialists



Reel

Easton & Burnham Machine Co.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Cotton Machinery by Specialists

Pickers and Revolving Flat Cards

POTTER & JOHNSTON MACHINE CO.

Pawtucket, R. I.

Drawing and Roving Machinery

WOONSOCKET MACHINE & PRESS CO.

Woonsocket, R. I.

Ring Spinning and Twisting Frames

FALES & JENKS MACHINE CO.

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Spoolers, Winders and Reels

EASTON & BURNHAM MACHINE CO.

Pawtucket, R. I.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Starch

THE particular case of your own mill needs careful study to determine what starch is best suited to *your* SIZING and FINISHING problems.

We have reduced the manufacture of starches for textile work to a science by years of factory investigation and laboratory research. We are ready to take up the special case of your mill and point out to you what starches are most adaptable and reliable for your purposes.

Six years of careful investigation of conditions in the cotton mills of the country has taught us the needs of the trade.

Six years' research in the best equipped Starch Laboratory in America has put us in touch with starch chemistry.

Six years of manufacturing, with cotton mill problems in mind, has produced our special Brands of Textile Starches.

We want to send our special starch expert to your mill. We want him to go into the matter of sizing with your boss of slashing—check up your sizing processes—find out whether you are now using the starches that will insure you the most efficient and economical results.

This special starch expert service is absolutely free—send us a sample of the starches you are using. We will give you an exact analysis of them and send our practical man to study your needs. Write a letter now to our Mill Starch Department.

Corn Products Refining Company
NEW YORK

Starch

The lamp backed by 35 years of EDISON experience

SINCE 1879 all the untiring study, the endless experiment, the startling discoveries, the wealth of lighting knowledge gathered in the making of 500 million lamps—all this plus the world-wide research and investigation of "MAZDA" Service is what you make sure of when you insist on

Edison MAZDA Lamps

For every mill lighting need

FROM the time that mills were first lighted with EDISON Lamps, our lighting engineers have constantly studied mill lighting conditions and the result is a complete line of EDISON MAZDA Lamps especially well adapted for this service.

These MAZDA Lamps are three to four times as efficient as the old style carbon filament lamps formerly in common use. This means three to four times as much light without any increase in the amount of electrical energy required—or equal light on one-third the energy.

There is no longer any excuse for the use of less efficient lamps than EDISON MAZDAS

Be sure the lamps you buy bear the name EDISON.

507x

EDISON LAMP WORKS
OF GENERAL ELECTRIC COMPANY
General Sales Office, Harrison, N.J. Agencies Everywhere

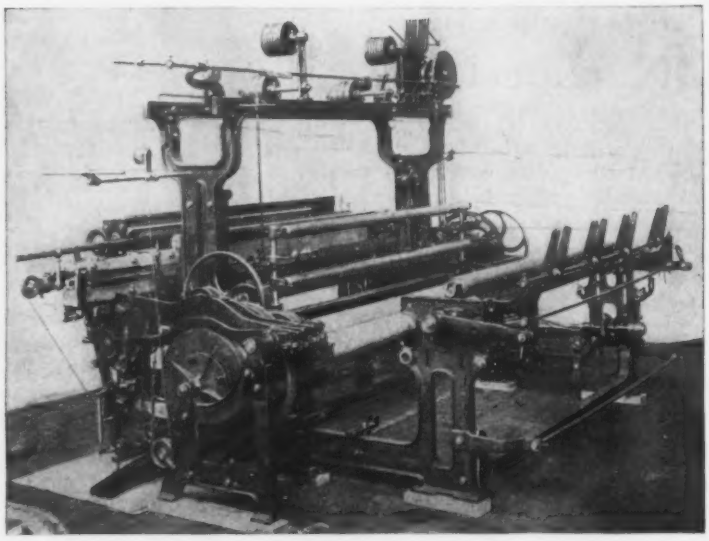
This symbol on all Edison Mazda Cartons

"Guarantor of Excellence on Goods Electrical"

A. W. BUHLMANN

Textile Engineer

200 FIFTH AVENUE - - NEW YORK



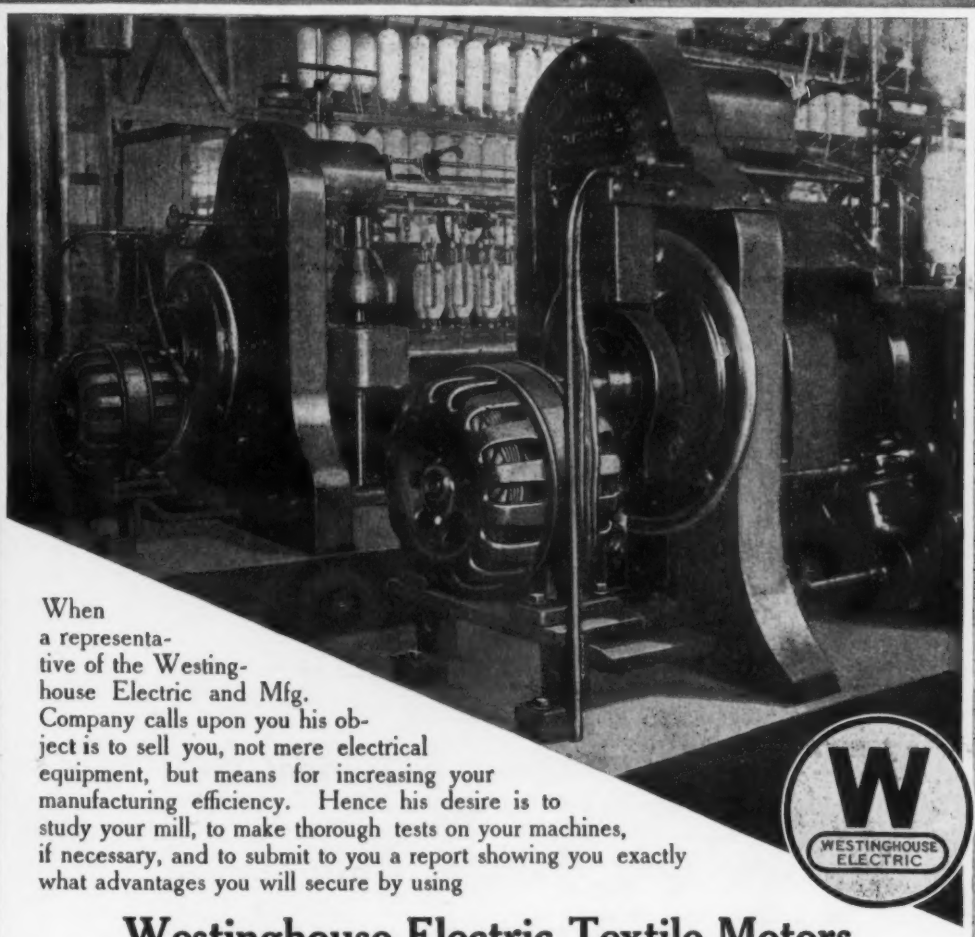
The Schroers Velvet Loom is used by the leading Velvet Manufacturers in this country and Europe

REPRESENTING

HERM. SCHROERS

MASCHINENFABRIK

CREFELD, - - - - Germany



When a representative of the Westinghouse Electric and Mfg. Company calls upon you his object is to sell you, not mere electrical equipment, but means for increasing your manufacturing efficiency. Hence his desire is to study your mill, to make thorough tests on your machines, if necessary, and to submit to you a report showing you exactly what advantages you will secure by using

W
WESTINGHOUSE ELECTRIC

Westinghouse Electric Textile Motors

This is ***Westinghouse Service***, and it is of value to the textile manufacturer because of the long experience that this Company has had in the electric drive of textile machinery and the many successful motor installations it has made in textile mills.

Avail yourself of Westinghouse Service. You will find its aim is to make greater profits possible for you.

Westinghouse Electric & Mfg. Co.

EAST PITTSBURGH, PA.

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Boston Safe Deposit & Trust Bldg.	165 Broadway	North American Building	308 American Building
Boston, Mass.	New York, N. Y.	Philadelphia, Pa.	Charlotte, N. C.

LANE

Canvas Mill Trucks
Baskets and Boxes

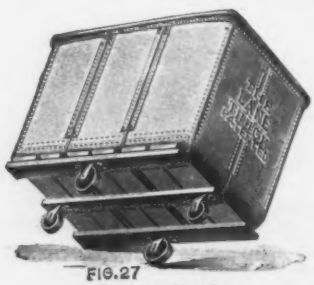


FIG. 27
The Lane Truck.
Mounted on Stationary Frame, Thread-guard Casters, as shown, or on Swivel Casters, if desired.

Altho' Withstanding the *Roughest Handling*

ARE THEMSELVES

Absolutely *Without Roughness.*

Thus They Reduce:

Cost, Waste, Damage

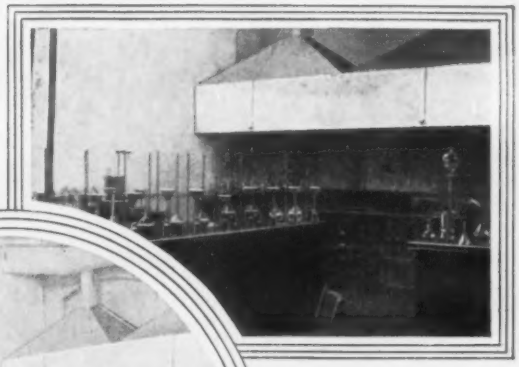
And They Are Light in Weight, Too

A STYLE FOR EVERY USE

W. T. LANE & BRO., Mfrs.

POUGHKEEPSIE, N. Y.

Laboratory Tests Guarantee Spartan Belt Quality



Of Vital Importance

is the laboratory in the production of high-grade belting. That's why our plant is equipped with an extensive laboratory with up-to-date equipment, and in charge of expert chemists.

All the tanning materials must, and do, receive a rigid analysis. The ingredients must be of the highest quality and of right proportions, or we can't and won't use them.

The exact condition of every hide is known at each stage of tanning and manufacture. Every analysis, every test, guarantees to you the superior quality and special characteristics of

Spartan Leather Belting

—The belting guaranteed to resist exposure to steam, oil, water, and heat generated by excessive pulley friction. ¶ The belting guaranteed to grip the pulley perfectly, transmit a maximum of power and reduce the friction load. ¶ The belting guaranteed to wear longer, and transmit power with greater economy than any other belting material used under similar conditions. ¶ Unqualified guarantees—and they are back of every foot of genuine SPARTAN Belting—look for the trade mark—it's your protection.

Write for further particulars and the Spartan Book

The Graton & Knight Mfg. Co., Worcester, Mass.

BRANCHES

Atlanta, Boston, Chicago, Cleveland, Detroit, Fall River, Kansas City, Milwaukee

Montreal, P. Q.

BRANCHES

Minneapolis, New York, Philadelphia, Pittsburg, Portland, Ore., San Francisco, Seattle, St. Louis

Selling Agents for Texas - - The Graton & Knight Mfg. Co., of Texas, Dallas, Tex.

The Most Interesting Thing in the World

is Profits and under some general plan of efficiency there are many ways in which the profits in any mill can be *increased.* Even if your mill has reached its highest possible production—even if you are getting the top notch price for your goods and your labor is working along scientifically correct lines—there is still a big chance to INCREASE YOUR PROFITS.

How? Simply by cutting out all waste motion. Eliminate everything that holds back the worker—that interferes with the "every minute" activity of the loom itself. By cutting out everything that can in any way injure the product during the weaving process.

DO THESE THINGS AND YOU'LL BOOST PROFITS QUICK

Take the "Universal" Iron End or for Silk Weaving The "Ideal" Frame as a starter. Here you get a Frame that is built to last. The life of either of these frames is lengthened indefinitely through careful handling and the use of the finest material money can buy.

Take the Flat Steel Heddle

Add to your frame equipment the Flat Steel Heddle—the heddle that automatically adjusts itself on the heddle bar in tune with the vibration of the loom—that wears, and wears, and wears—and you have about gone the limit in cutting costs—in reducing waste—in raising efficiency of your men and in pushing production to its utmost.

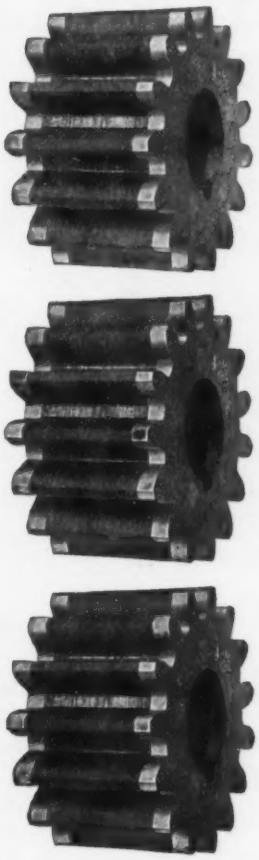
Do you want to cut costs? Then write today, place a trial order and let us prove our claims

Steel Heddle Manufacturing Co.

2100-18 W. Allegheny Ave., Philadelphia, Pa.

Providence (R. I.) Office - - - 76 Dorrance Street

INSIDE THE BORDER IS A COMPLETE LIST OF THE OBJECTIONABLE GEAR NOISES PRESENT WHERE **NEW PROCESS NOISELESS PINIONS** ARE USED



Surely this is better than the ringing, rattling, roaring, shrieking, nerve-racking sounds from metal-to-metal gear contacts.

Send for and read our Booklet
"NOISELESS GEAR DRIVING"

NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

N.P.R.H. **NEW PROCESS GEAR CORPORATION** N.P.R.H.

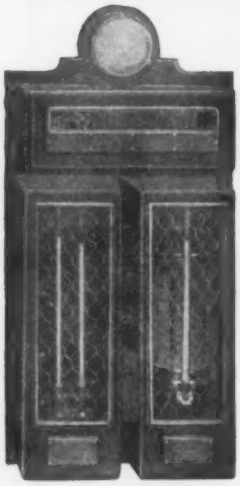
SYRACUSE, N.Y.

Canadian Agents: Robert Gardner & Son, Ltd., Montreal

96

Cramer System
of
Air Conditioning

Cramer "High Duty" Air Conditioner



Cramer Automatic Regulator

FACTS

In several large mills equipped with humidifiers of other makes, we have entirely reorganized their system, installing our "High Duty" equipment with automatic humidity and temperature control and the average improvement during the succeeding twelve months test is:

A—Seconds reduced over 50%.
B—Production uniform day after day (No big jumps.)
C—Actual waste account halved.
D—Large saving in "invisible waste."

What Would Similar Results Be Worth To You?

STUART W. CRAMER

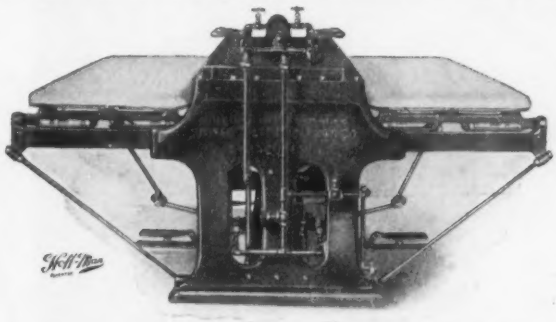
50 Church St. New York — **Charlotte, N. C.** — Tremont Bldg. Boston, Mass.

EFFICIENT KNITTING MILL PRESSES

THE MOST POPULAR UNDERWEAR PRESS ON THE MARKET

Used in the leading mills of America, Canada, Great Britain, France and Germany

At the will of the operator the hard and flat or high and lofty finish can be produced



Hoffman Underwear Press --- Model F F F

For capacity and finish there is no press so capable of "making good" as the

Hoffman F F F

It's built on the principle of direct application of hot, dry steam to the garment.

Can be installed anywhere in the mill as an independent unit.

"INCREASE THE CAPACITY—MAINTAIN THE QUALITY"

That is the Hoffman Method

—quality must not be sacrificed in striving for quantity.

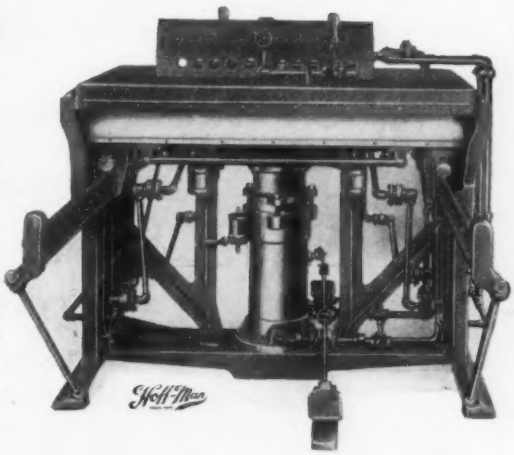
The direct application of hot, dry steam to hosiery produces a finish not obtainable by any other pressing method.

Selling agents endorse the HOFFMAN method of pressing hosiery.

There are no power consuming mechanisms. There are just two connecting steam pipes, one a feed pipe leading from factory boiler to the machine, and the other an exhaust.

The only satisfactory equipment for pressing silk hosiery.

Can be installed anywhere in the mill as an independent unit.

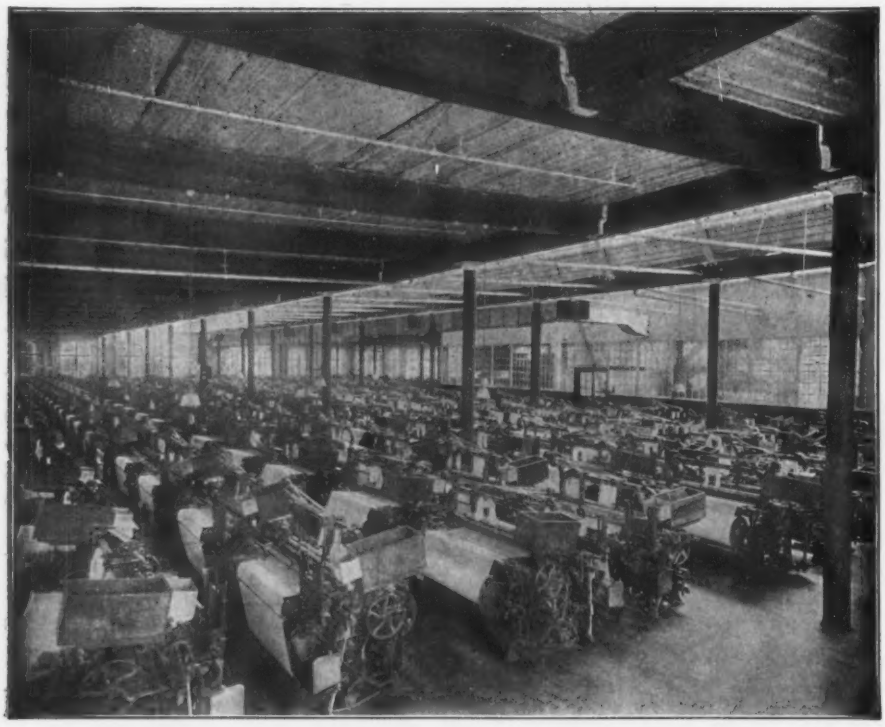


Hoffman Model L Hosiery Press

IF YOU WANT PRESSES FOR KNITTING MILLS, WRITE TO

UNITED STATES HOFFMAN CO.

SYRACUSE - - - NEW YORK



Another recent installation

400 "Ideal" Automatic Looms

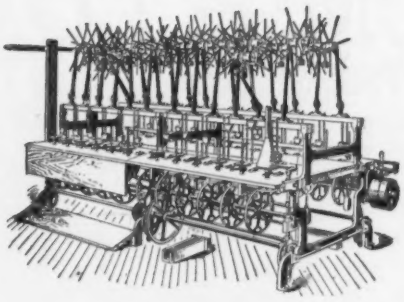
on 5 harness sateens

These looms were installed as the result of a test during which the superiority of Stafford Looms over all competitors was clearly demonstrated

THE STAFFORD COMPANY

READVILLE, MASS.

FRED H. WHITE, Southern Agent - - Charlotte, N. C.



JACOB K. ALTEMUS
Textile Machinery

For Winding, Warping Spooling and Kindred Use

2824 NORTH FOURTH STREET
PHILADELPHIA, PA.

THIRD ANNOUNCEMENT

Read and consider and you will decide to use the Altemus Winder—and you will save money

IN these announcements we are giving honest reasons why the New Patented Altemus Winder has features that mean economical knitting of a more profitable product.

To insure perfect knitting you must have perfect winding this cannot be disputed. *This machine is the only successful one made*, and with the improved Automatic Builder, it overcomes all difficulties due heretofore to variation in bobbin diameters or underlap of yarn when winding. You can avoid these troubles.

It is folly to waste time and yarn on winding, when you can get this machine that will wind correctly from the start. Our success is due to the fact that we had the situation under control from the beginning; with the winder to wind from the skein; the only practical size and shape of bobbins to use; and the knowledge of how to handle the yarn.

Do not fail to remember this fact: Knowing the proper way to handle the yarn is necessary to your success.

We tell you how to handle all details so that *in a very short time you will secure profitable results.* Our ability and skill will be worth considerable to the users of our winders.

Building this winder has been an expensive proposition, both for the purchase of the patent and the tools necessary to insure high class mechanical work. For we wanted to avoid depreciation and minimize the necessary attention for upkeep.

And so we are able to GUARANTEE that it will remain in good order and condition; that it is correctly built and will give entire satisfaction; also that it will give you PROFITABLE RESULTS and save you the price of the machine in a short period.

DO NOT HESITATE, this winder is the only one, and the latest idea, which is an entirely new departure in the building of the bobbins and its use will save you money.

FOUR DISTINCT TYPES OF WINDERS

as follows:

ALL TIME, LABOR AND MONEY SAVERS

1. **ARTIFICIAL SILK and SILK SKEIN WINDERS**
2. **MERCERIZED COTTON SKEIN WINDERS**
3. **BACK WINDERS from Cones to Large Bobbins and also for Splicing Yarns**
4. **SWEATER AND KNIT GOODS WINDERS**

WRITE FOR INFORMATION—MENTION THE TYPE YOU ARE INTERESTED IN

SMITH, DRUM & CO.

"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing, Singeing and Finishing

HOSIERY

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

SAVE LABOR and **DYE STUFF** and do **BETTER WORK**
in your dye house by using

Smith, Drum & Co. Machines

Full Particulars on Application

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Southern Agent
H. G. MAYER
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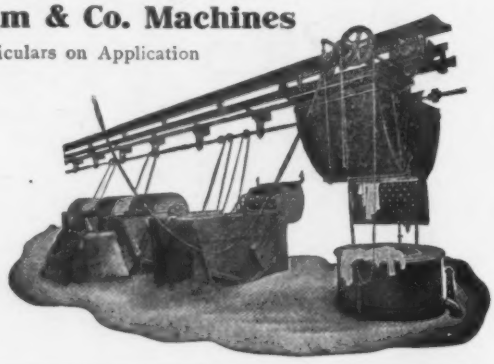
CHARLOTTE, N. C.



LAWSON'S

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery
For the Manufacture of
Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machines.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.

"This Rope Was in Continuous Service for Ten Years"

That's What a Customer Says

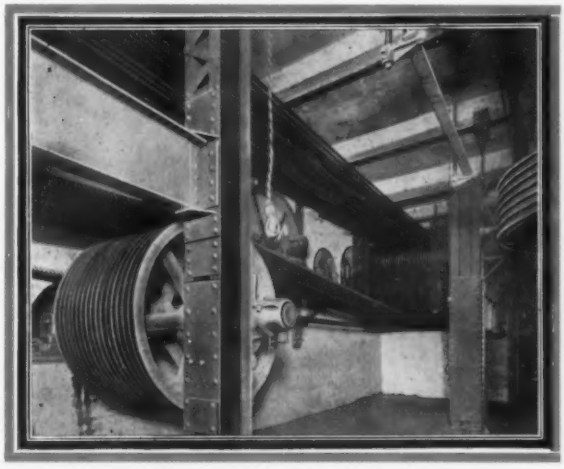
Another writes—"Our present rope is an AMERICAN, installed in September, 1903, and the fibre when spliced one year ago was very good."

And another—"Your rope lasted five years without breaking and we want another just like it."

We get many letters like these—all establishing the fact more and more firmly that there is no service equal to that given by

AMERICAN
TRANSMISSION ROPE

Its strength is due to the quality of its fibres—all pure, long, selected Manila throughout strands and core. Its record for long and efficient service is due to the way the outer yarns are edged to withstand wear, the lubrication of the inner yarns that does away with destructive fibre friction.



¶ **Install *American Transmission Rope* in your plant. You'll repeat the satisfactory experience of other users.**

Write
for this FREE Book

¶ Upon request on your business letterhead, we will be glad to send you our "Blue Book of Rope Transmission." It contains much practical information and many helpful suggestions for transmission rope users.

We Ship Without Delay—On Telegram if Necessary from either point of manufacture

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The Kron Scale

Automatic *Springless*

"LOAD AND LOOK"

Have You a Kron in Your Plant?

IF NOT, YOU OWE IT TO YOURSELF TO INVESTIGATE THE MERITS OF THIS TIME, LABOR, MONEY SAVING SCALE

Leading industrial plants of every description, Packing and Provision Houses, Railway and Express Companies—every business where a saving of time and labor, the elimination of errors and guesswork mean a saving of money, are using the Kron.

There is a type of Kron, either Dormant or Portable, to meet every requirement of any business, where speed and accuracy are desired.

Write for catalog and let us tell you of leading concerns in your line of business who are using the Kron. *Write today.*

TARE BEAM for automatic deduction of tare, so that only the net weight is shown on the dial.

American Kron Scale Co.

39 Cortlandt Street
New York

1029-1031 South Wabash Ave., Chicago, Ill.

Your Problems Are Being Met By KisselKar Trucks

KisselKar Trucks are not only good trucks in a general mechanical sense, but are the right trucks for YOU—IN YOUR BUSINESS. This can be proven by asking us who *in your line* are owners, and following the information by asking these owners. They will tell you that they not only received a well built, serviceable vehicle, but one which particularly suited their individual requirements.

KISSELKAR TRUCKS

It is the Kissel policy to sell only trucks that will pay—trucks adaptable in size to the needs of the buyer. We study your haulage problems and give you just the truck you should have to keep your trucking on an economical as well as a highly efficient basis—hence the range of sizes. Standard sizes: 1500 lbs., 1, 1½, 2½, 3½ and 6 tons. Bodies to order.

The KisselKar Truck portfolio with 350 illustrations is indispensable to you if you are considering the truck question. Write for it.

Kissel Motor Car Co.

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New York, Chicago, Philadelphia, Boston, St. Louis, Kansas City, Milwaukee, Minneapolis, St. Paul, San Francisco, Los Angeles, Dallas, and 300 other leading Canadian and American points.

KISSELKAR TRUCK IN TEXTILE TRADE

A Poor Water Supply Is a Business Thief!

Yes, a thief!—quietly stealing your profits by stealing the energy, efficiency and time of your employees.

Statistics prove that drinking water in contact with ice often becomes contaminated. And even when pure—*if excessively cold*—it frequently causes illness among operatives and other employees. This, of course, means *increased cost of production* for you. *Part of your profits have been stolen!*

Safeguard the health of your employees—and at the same time your own profits—by installing the

J-M Drinking Water System

(Using A-S Refrigerating Machine)

Your employees will enjoy an ample flow of pure, clear, palatable drinking water at a temperature best suited to health. The running cost will be merely the cost of your electric current or whatever power you may be using.

Any business, big or little, can use the J-M Drinking Water System to advantage. It is the modern, sanitary, economical way for the modern office or factory. No attendant necessary—as simple as turning on or off the light over your desk. No ammonia, no gases. Explosion impossible.

Write our nearest Branch and learn how you can have plenty of pure drinking water at low cost.

H. W. JOHNS-MANVILLE CO.

Albany, Baltimore, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Indianapolis, Kansas City, Los Angeles, Louisville, Milwaukee, Minneapolis, New Orleans, New York, Omaha, Philadelphia, Pittsburgh, San Francisco, Seattle, St. Louis, Syracuse

THE CANADIAN H. W. JOHNS-MANVILLE CO., Limited
Toronto Montreal Winnipeg Vancouver 2470

There's Profit in the Summer Lull

During the sweltering summer days, when the thermometer sizzles around the nineties; when everybody lets up; when profits go down, but overhead stays where it is—that's the time to make profits bigger for the busy fall and winter. You can best afford, during the slack season, to install

"Sells" Roller Bearings

the dependable **all-split** line-shaft bearings, that **interchange** with plain bearing boxes. If you install them now, or later in the summer, you will be drawing profit out of the low-profit summer months—the lull time of the year—by preparing for a lower power expense soon as business picks up. The thousands of "Sells" bearings in use are your best guarantee of the service that you'll be building into your plant. Write today.

Catalog?

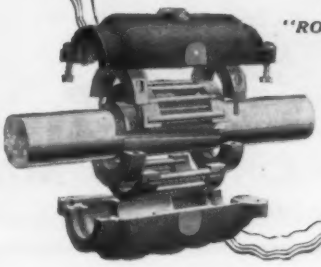
Also "Sells" Commercial Roller Bearings, Power Transmission Machinery, Punches and Shears, Grinders and "Rollerine."

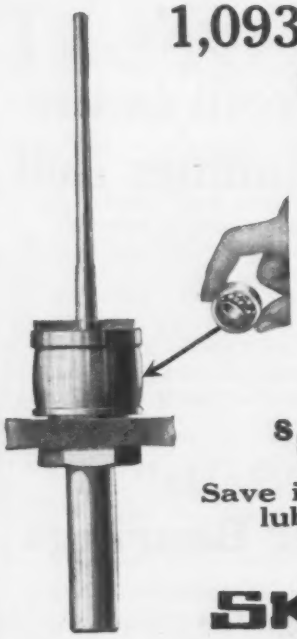
Royersford Foundry and Machine Co.

56 No. Fifth Street

PHILADELPHIA

USE "ROLLERINE"





1,093,500,000 REVOLUTIONS WITHOUT WEAR

This S K F Self-Aligning Ball Bearing in this spindle was taken from a Twister Frame after twenty-seven months' continuous service. The spindle speed was 2700 revolutions per minute, which means that the spindle turned 1,093,500,000 revolutions.

NO TRACE OF WEAR COULD BE SEEN

Specify

SKF Ball Bearings on Spinning Frames

Save in power. Save the driving bands. Save lubricant. Higher speed, increased production. No lubrication troubles.

Send for Textile Bulletin No. 14m.

SKF BALL BEARING CO.

50 CHURCH STREET, - - NEW YORK

THE NEW OSWEGO METHOD

FOR BOTH STRAIGHT CUTTING AND PINKING SAMPLES

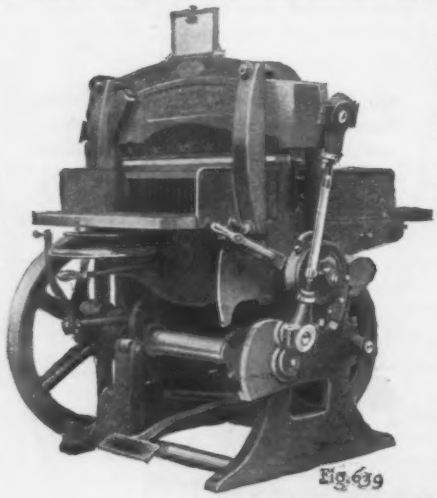


Fig. 639

at a great economy of time and cloth is possible on the NEW OSWEGO AUTOS, equipped with back gauge size duplicating attachment and any length of iron back table desired, and other equipment especially adapted to each case for the most rapid production. The instant adoption of the OSWEGO Cutters by many progressive American firms indicates their success on all kinds of textiles, etc.

Thirty-five stock sizes and styles, from 19 in. to 84 in. (larger sizes to order), enable you to select any size or style or price OSWEGO you desire. Each OSWEGO Cutter is guaranteed and the best producible. For Paper, Board, Cloth, Foil, Celluloid, Leather, Etc., Etc.

OSWEGO MACHINE WORKS

NIEL GRAY, Jr., Proprietor — OSWEGO, NEW YORK

BIRCH BROTHERS

ALBERT BIRCH, TEXTILE MECHANICIAN

SOMERVILLE, MASS.

Starch Mangle.—This is the two-roll machine, with brass and rubber rolls. Mangles built with rollers of any material or number desired. Send for circular.

"Coronation" Piece-End Sewing Machine

Sent on trial most anywhere

Sews any fabric, thick or thin, wet or dry, without change

Fine Stitch or Coarse Stitch

Send for Circular

Also Makers of

Dyeing and Finishing Machinery

Scutchers, Openers, Folders, Crabbing and Soaping Machinery

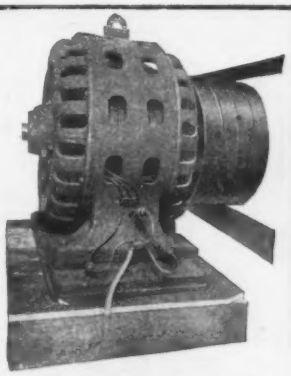
Less Expensive—More Efficient Motor Pulleys

There are many motor pulleys more expensive that are not equal in efficiency to

"American" Steel Split Pulleys

Made in diameters 3″ to 60″ inclusive. Pulleys above 60″ diameter on application.

"Americans" at full loads will transmit more horsepower with less belt slip than any other pulleys on the market. The grooved air escape on the face (an exclusive "American" feature) by disposing of air, which would otherwise be imprisoned between the belt and the pulley face, greatly improves belt contact. Being parting pulleys, with a tight clamping hub, they are easily and quickly installed, taking an *immovable* grip on the shaft.



A Double Arm "American" Steel Pulley running on a 250 H.P. motor at 580 R.P.M. Pulley size, 40″ diameter x 20″ face x 6″ bore, bushed to 4⅞″.

Pulley is mounted on an overhanging shaft 16′ long with no outboard bearing.

Patented

There is an "American" pulley user in your vicinity. Ask him. There's an "American" pulley dealer near by; consult *him*, or write us for **"Factors of Energy,"** a little book giving a full description of "American" pulleys and also many practical hints on transmission subjects.

THE AMERICAN PULLEY COMPANY

PHILADELPHIA NEW YORK CHICAGO BOSTON

Stocked and Sold by Dealers

For High Speed Small Pulleys

In the textile mill there are many exacting needs for high-speed, small-pulley belts. Goodyear experts have investigated the various conditions in these places.

They have designed belts to meet them all—a belt for each specific purpose.

And then these same experts have superintended the making of each belt by master workmen. By exhaustive laboratory tests they have proved the high quality of rubber and fabrics. By master methods and equipment they have produced belting to measure up to every service requirement—belting that obviates breakdowns while delivering the maximum power.

There's a vast differerence between belt "price" and belt *service*. One is what you pay; the other is what you get. And *service* is *real* economy. That's the thing to consider when buying belting.

"Jove" Belt

Designed especially for high-speed and small-pulley conditions. Hard weave fabric and fine Para rubber make this belting flexible. Hugs the pulley tightly at all times. The stretch is taken out in the making—no shut-downs to readjust belting. A belt of unusual service.

"Klingtite" Belt

A fine transmission belt for reasonably good-sized pulleys. Won't slip. Won't stretch. Won't sag. Made to meet exacting conditions. A high-grade belt with a fine friction surface and great pulling power.

Packings and Valves

Goodyear Packings and Valves for every pressure and purpose. Designed and manufactured with all the skill and quality that mark all other Goodyear products.

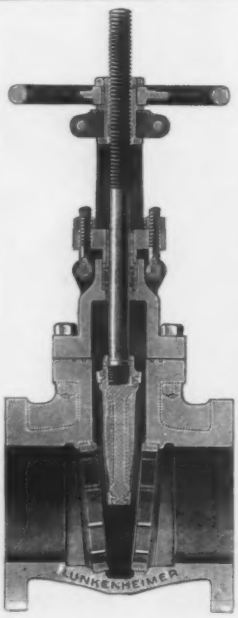
Goodyear Service

Consult Goodyear experts before you buy belting, packing or valves. Learn what it means to get the very product for the very purpose. The Goodyear Efficiency Department will be glad to confer with you at any time, without charge or obligation. Remember that Goodyear quality dominates in this field as in Tiredom. Ask questions. Put your problems up to Goodyear. (1630)

GOODYEAR AKRON, OHIO
Rubber Belting

THE GOODYEAR TIRE & RUBBER COMPANY, Belting Dept., AKRON, OHIO

Toronto, Canada London, England Mexico City, Mexico Write Us on Anything You Want in Rubber



LUNKENHEIMER "VICTOR" GATE VALVES

Made in Medium and Extra Heavy **Bronze** Patterns; Standard, Medium, Heavy and Extra Heavy **Iron Body Bronze Mounted** Patterns, and in **"Puddled" Semi-steel** and **Cast Steel**; with Rising Stem and Yoke or Stationary Stem; with or without By-pass, in all standard sizes and for various pressures.

Complete line of Lunkenheimer High Grade Engineering Specialties includes, besides the above, Bronze and Iron Body Bronze Mounted Globe, Angle, Cross, Check, Non-return Boiler Stop, Throttle, Blow-off, Pop Safety, Relief, Screw Down Check Valves, etc.; Water Columns, Gauges and other Boiler Mountings; Whistles and Ground Key Work of all descriptions; Injectors, Ejectors, Lubricators and Lubricating Devices; Oil Pumps, Oil and Grease Cups; Gas Engine Specialties, etc.

Your local dealer can furnish them; if not, write us.

For a complete description of the entire line, see Lunkenheimer Catalogue No. 50. Write for a copy.

THE LUNKENHEIMER CO.
"QUALITY"

654b

Largest Manufacturers of High Grade Engineering Specialties in the World.

NEW YORK CHICAGO **CINCINNATI, OHIO** BOSTON LONDON

Five Points of Efficiency Combined in the Powell "Trojan" S. F. Lubricator

¶ 1. A thoroughly efficient double connection Lubricator of neat design, superior workmanship and finish.

¶ 2. The body shell is cast in one piece—a patented Powell construction.

¶ 3. This insures positive feed and perfect lubrication under all conditions, as the arms cannot get out of line and there are no joints to loosen or leak.

¶ 4. The oil is poured directly into the reservoir *A* through filling hole *B*.

¶ 5. No waiting for the oil to seep through any small openings.

Ask your dealer for Lubricators, Oilers and Grease Cups, or write us

THE WM POWELL CO.
DEPENDABLE ENGINEERING SPECIALTIES
CINCINNATI, O.

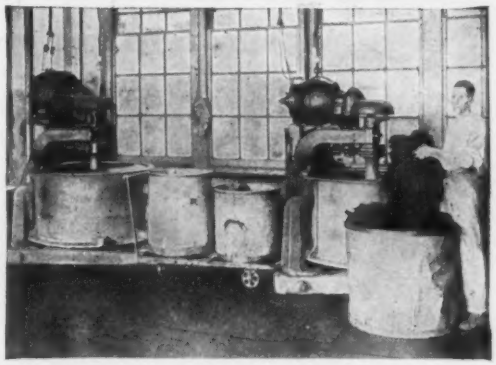
THE PALMER
Adjustable Thread Guide

Cheapest to Buy
Cheapest to Install
Easiest to Adjust
Absolute and Rigid Adjustment

Mail Guide Block for Free Sample

Patented and Manufactured by

THE I. E. PALMER CO.
MIDDLETOWN, CONNECTICUT



For Drying Materials in the Raw State or in Process

The John B. Stetson Co., Philadelphia, one of the most prominent hat manufacturers in the world, uses Schaum & Uhlinger Centrifugals, both for drying of washed felt, and for extracting water from the made-up hats.

The great variety of practical and profitable uses to which

Schaum & Uhlinger Centrifugal Extractors

may be adapted, has caused their selection by over 1500 firms, for the drying of textiles, by-products, chemicals, etc., and for the separation of solids from liquids.

S. & U. Centrifugals are made for steam, belt or electric drive—are self balancing and require the minimum of foundation—are easily and quickly started, attain full speed rapidly, and are promptly brought to a stop by a powerful brake.

We shall be glad to tell you all about the efficiency, economy, dependability and longevity of the Schaum & Uhlinger Centrifugal Extractors, and to give you names of users in your vicinity.

Our new catalog entitled "Centrifugal Extraction" is just from the press. It will be sent you immediately without obligation. *Write for it now.*

Schaum & Uhlinger, Inc.
204 Glenwood Avenue, • • Philadelphia

Type "E"

Will improve your product and save money.

Saponified Oil for Wool

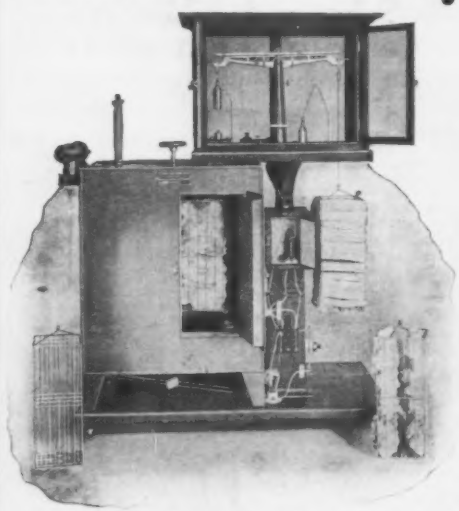
(Breton Brand)

Yields a perfect emulsion with the use of water only. Easiest to apply. Clears itself in scouring and fulling far easier than other oils.

Sold subject to trial and approval.

BORNE, SCRYMSER COMPANY. 80 South Street, New York
Boston Fall River Philadelphia Works, Claremont, N. J.

Moisture is Money



The weight of all raw and finished textile products varies with moisture.

The size of all yarns varies with moisture.

The strength of all yarns and fabrics varies with moisture.

The value and quality of all textile products vary with moisture.

Moisture is money. If you do not watch it you will lose money every day.

Use a Conditioning Oven and know exactly what you are doing.

Emerson Apparatus Company,
251 Causeway Street, - Boston, Mass.

Burn Cheaper Fuel and Burn It All

It isn't the *price per ton*, but the *cost per horse power* developed, that counts. But it *does pay* to burn cheap fuel if you can do it *without waste* and *without smoke.*

The Murphy Furnace

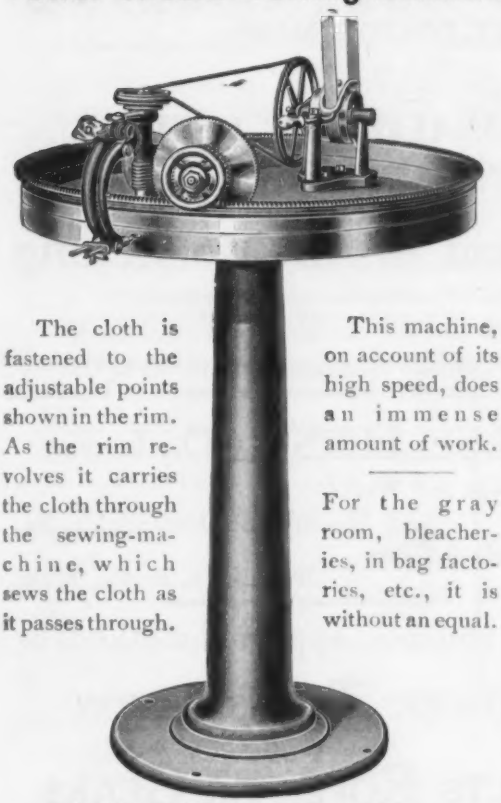
Automatic—Smokeless

Is automatic, in all its functions. It *does* burn low grade bituminous fuels *without waste* and *without smoke.*
The Murphy Furnace is adaptable to boilers of every type and to units of any size. Operates with natural draft. Maintenance and operating costs are low.

GET THE MURPHY CATALOG

Murphy Iron Works
Detroit, Mich.
Chicago 175 Pittsburgh Buffalo

2000 STITCHES A MINUTE
THAT'S THE CAPACITY OF THIS
Power Circular Sewing Machine



The cloth is fastened to the adjustable points shown in the rim. As the rim revolves it carries the cloth through the sewing-machine, which sews the cloth as it passes through.

This machine, on account of its high speed, does an immense amount of work.

For the gray room, bleacheries, in bag factories, etc., it is without an equal.

Send for catalog of our sewing machines.
DINSMORE MANUFACTURING CO.
SALEM, MASS., U. S. A.

The Saving and Increased Production

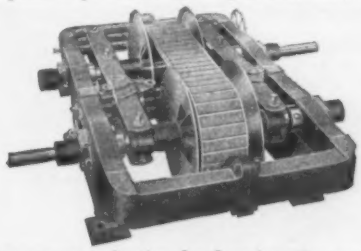
effected through the use of

"The Reeves" **Variable Speed Transmission**

amounts to many times the cost of the installation each year.

It saves time because you do not stop to change the speed—just turn a hand wheel.

It saves materials because you secure exactly the right speed on your machine to perform the work.



It increases production by keeping the machines running at the h ghest speed all the time at which good work can be done.

It increases your profit because you do more work on the same machines without a cent of extra expense.

Begin that saving right now—write for Catalog T-16.

Reeves Pulley Co., • Columbus, Ind.

Chicago Branch, Corner Clinton and Monroe Sts.

EASTERN AGENTS:

Lewis E. Tracy Co., ... Boston
Patterson, Gottfried & Hunter, New York City
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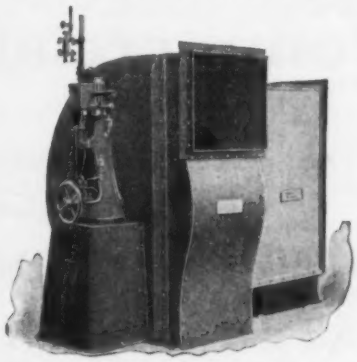
INCREASE YOUR TENTER FRAME OUTPUT

With a Fan and Heater Coils



The Apparatus required is very simple.

The results decidedly increase the Output and Profits from each machine.

The New Tariff presents New Problems—Maximum Economy is the best answer

Write us today for special information on this subject.

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400 Howard St. Watertown, Mass.

WILLIAM FIRTH
Pres.

THE

FRANK B. COMINS
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American Moistening Company

120 FRANKLIN STREET, BOSTON, MASS.

Received the HIGHEST AWARD on recommendation of the FRANKLIN INSTITUTE for

"SIMPLICITY AND ORIGINALITY OF DESIGN"

Is the largest manufacturer of HUMIDIFIERS in the world. The last twenty years receiving the HIGHEST AWARD in this country and Europe for its AIR-MOISTENING SYSTEM. EIGHT GOLD MEDALS and others.

The Only Perfect System of Air Moistening

Has Been Adopted by the Representative Manufacturers of this Country.
The only System adopted in the Textile Schools. Write for booklet "T" on Humidification.
Legal proceedings will at once be taken against infringers and users of infringements.

JOHN HILL, Southern Representative, 510 Third National Bank Building, ATLANTA, GA.

WM. SELLERS & CO., INCORP'D

Main Office and Works
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New England Office
79 Milk St., Boston, Mass.

Latest and most approved methods of

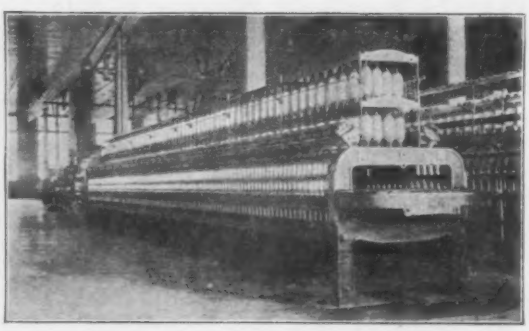
POWER TRANSMISSION

by

BELTS, ROPES, OR GEARS

Write for full information

THE BROWN SPIN-WRIGHT



Commercial Frame

As Operated Successfully in a Large Mill

For Particulars Address

The Brown Spin-Wright Cotton Co.

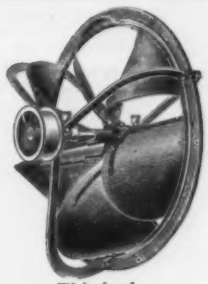
32 Union Square, New York, N. Y.

The BERRY WHEEL MEANS BETTER WORK

Because with a Berry Fan you rid your rooms of the air impurities that produce decreased vitality—resulting in less and poorer work. Give the employees pure air—for that means energy—and increased production.

For Drying and Ventilating Facts, Write To

A. HUN BERRY, 29-33 West First St., Boston



This is the
BERRY WHEEL OR FAN
WITH NO BACK DRAUGHT
the most effective agent on the market for drying and for eliminating steam and other impurities from the air.

Leonard Weldon was an **inventor.**

Born in Nottingham, England, he came to the United States in 1882.

His first Dyeing Machine was patented in 1886. He died in 1901.

Between 1886 and 1901, 17 U. S. patents were granted to him for improvements in Dyeing Machines.

All of these patents have expired with the exception of 2.

The numbers and dates of the two unexpired patents are:

645698, March 20, 1900
659906, October 16, 1900

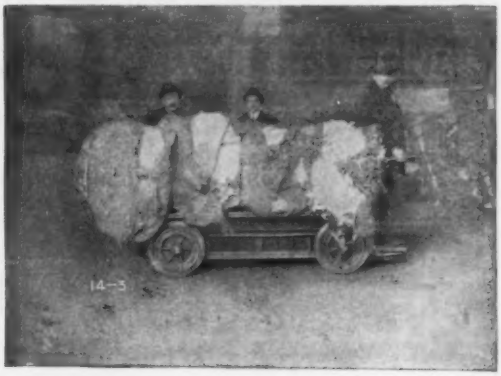
A search of the United States Patent Office records on March 9, 1914, showed that neither of the above patents had ever been transferred to any one by Leonard Weldon or his heirs and were at that time the property of the Leonard Weldon estate.

March 9th, 1914, Katherine Weldon and Samuel H. Telford, executrix and executor of the last will and testament of Leonard Weldon, deceased, assigned to John H. Giles, the president of the John H. Giles Dyeing Machine Co. of Amsterdam, N. Y., and Taunton, Mass., Patent No. 645698, of March 20, 1900.

By this purchase we become the sole and exclusive builders of machines under the oldest unexpired Leonard Weldon patent

John H. Giles Dyeing Machine Co.

Taunton, Mass. Amsterdam, N. Y.



Hunt 2-ton Truck with Load of Cotton

HUNT
Storage Battery Industrial Truck

Designed for the Economical Handling of Material in and around Mills, Steamship Piers, Manufacturing Establishments, Railroad Terminals, *etc.*

They are Rugged, Simple in Design, Powerful, Fool Proof, and
Absolutely Reliable

Write us for Catalog N-13-4 and let us tell you how this Truck will save you money

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West New Brighton, N. Y., U. S. A.
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HUNT SKEIN SCOURING MACHINE

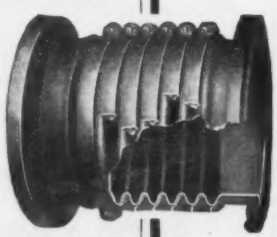
The general design of the Hunt Skein Scouring Machine is such as to allow of scouring and rinsing in continuous operation without emptying the machine for each process. A partition divides the tub into two compartments. The skeins may be thoroughly washed and scoured in one compartment and then run over to the guide ring leading into the wringing rolls of the other compartment which may be used simply for rinsing. All operating parts are within easy reach. The upper rolls are rubber.

RODNEY HUNT MACHINE CO.
Main Office and Works, Orange, Mass.
Boston Office - - - 70 Kilby Street
Send for Circular 203

The New Badger Expansion Joint Saves Time and Trouble

Here's an expansion joint for steam, gas, or water pipe lines which is low in first cost, is absolutely reliable, never requires packing, and lasts a life time. It is made of corrugated copper with equalizing rings to insure each corrugation taking its share of the expansion. Made in all sizes and for any pressure.

Send now for our new catalog showing construction and giving description and result of exhaustive tests.



The E. B. Badger & Sons Company
73 Pitts Street, Boston, Mass.
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RELIANCE CLOTH HANGING MACHINE

For shrinking woolen, worsted and cotton goods; drying **oilcloth**, or waterproof cloth, and curing rubberized cloth.

Can be attached to any machine or operated separately

In use by the United States Quartermaster department for shrinking uniform cloth.

Write for catalogue and prices

Reliance Machine Works
Frankford, Phila.

Hangers, Shafting, Pulleys

AND ALL APPLIANCES
FOR

Power Transmission

"Fox" Lathes, "Roper" Oil Separators

Hydro Extractors, Waste Washing Machines

The American Tool & Machine Co.

Incorporated 1864 **BOSTON**

SALEM ELEVATOR WORKS

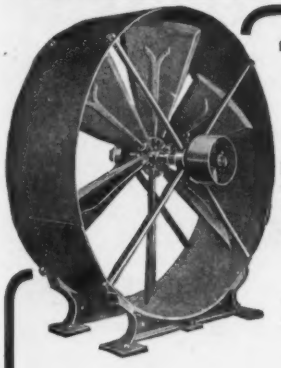
Salem, Mass.

Elevators Especially Adapted for Textile Mills

Protect Yourself Against Liability Laws

We make a specialty of attaching to Elevators, already in use, Automatic Folding Hatch Doors, Semi and Full Automatic Gates, Automatic Locking and Stopping Devices, Automatic Car Safety Attachments, etc.

Send for Illustrated Catalogue and Estimate



The Perkins All-Steel Fan

Is Almost 100% Efficient

Because: The blades being adjustable the draft can be regulated at will—**without changing the speed**—and can be made to blow **in** or **out**; the frame, drum, arms, shafts, etc., being made of STEEL, the minimum of weight and the maximum of durability are attained; and—

Because the Self-Oiling Journal Boxes

make it possible to run a Perkins Fan much longer, **without oiling,** than safety would allow you to run any other ventilating fan.

For further facts about the Perkins Noiseless Fan—

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Power transmission systems built and installed for driving any fan in any position desired

B. F. PERKINS & SON, INC., HOLYOKE, MASS.

Tolhurst Self Balancing Extractors

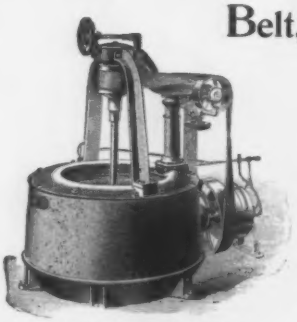
Belt, Engine and Motor Driven

Sizes 12" to 72"

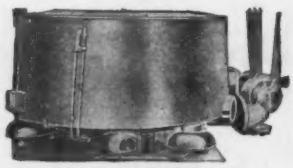
Dye Tubs and Tanks

Reel Dyeing and Bleaching Machines

Washing Machines



Over Driven Extractor



Open Top Extractor

TOLHURST MACHINE WORKS, Troy, N. Y.

FRED H. WHITE, Southern Representative, Realty Bldg., Charlotte, N. C.
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For QUANTITY of PRODUCTION
HAS STOOD THE TEST OF YEARS

Sole Agents for U. S. A.

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"DOBBIES"

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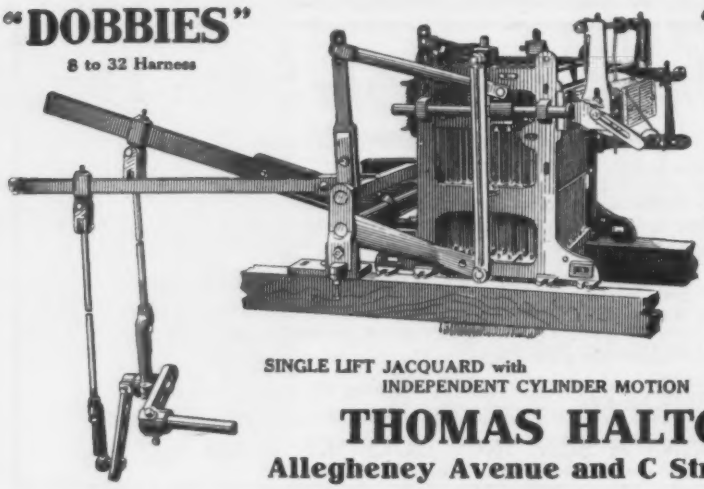

SINGLE LIFT JACQUARD with
INDEPENDENT CYLINDER MOTION

"JACQUARDS"

208 to 2608 Hooks

ALL TYPES

HARNESS BUILDING

THOMAS HALTON'S SONS

Allegheny Avenue and C Street, Philadelphia

THE

"No-Waste"

Seamless Hard Fibre Roving Can

It does not have the riveted seam that strains and breaks the sliver

NO SEAMS OR RIVETS

ABSOLUTELY SMOOTH

Also

Fibre and Steel Clad Cars
Doffing Trucks
and
Mill Boxes All Kinds

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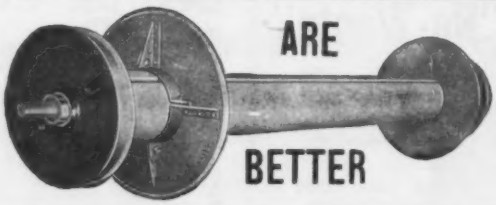

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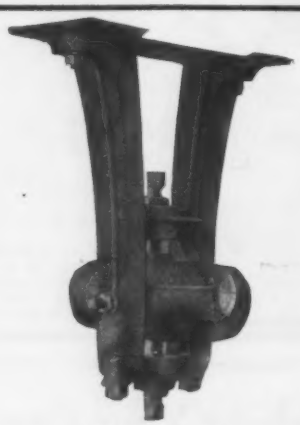

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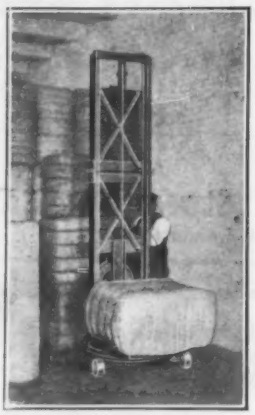

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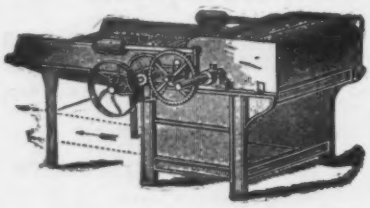

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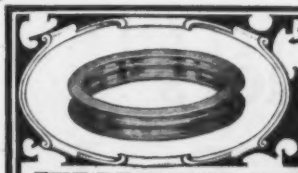

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A Complete Directory of Cotton, Woolen, Knitting, Silk, Flax and Jute mills of the United States and Canada, together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments; about 7,000 in all. Full information is given about each mill in almost every instance, viz., the name of the company or firm, names of officers, agent, superintendent, the character of goods made, the machinery equipment, i. e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dye house or not, the names of the selling agents or if the mill sells direct. All this and much other information contained in this book is arranged in a way to be instantly accessible.

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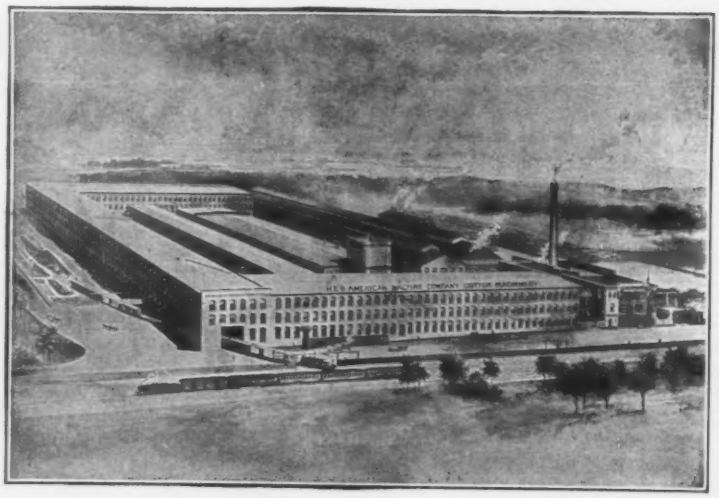
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



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TEXTILE WORLD RECORD

JULY, 1914

Monthly Comment.

Bunting for American Flags

For the past three months the Navy Department has been involved in a controversy over the bids for 255,000 yards of bunting for American flags. These bids, which were opened by the Department on April 14, were as follows:

Wellington, Sears & Co., material to be manufactured by the N. E. Bunting Co., Lowell, Mass.	$44,625.00
Harold M. Turner, material to be manufactured by the U. S. Bunting Co., Lowell, Mass.	43,095.00
C. B. Brook & Co., Bradford, Yorkshire, England	25,617.50
Duty free (equivalent to $34,583.63 duty paid at 35% ad valorem).	
Nostrand-Reynolds, Inc., material to be manufactured by Wm. Bancroft & Sons, of Halifax Ltd., Halifax, Eng...	34,349.50
Duty paid (equal to $25,444.08 free of duty).	

It will aid in comparing the American and English bids by putting them all on the same basis:

	Duty Paid	Free of Duty
N. E. Bunting Co., Lowell....	$44,625	$44,625
U. S. Bunting Co., Lowell.....	43,095	43,095
C. B. Brook & Co., Bradford..	34,583	25,617
Nostrand-Reynolds, Halifax ..	34,349	25,444

The specifications for the bunting on which the bids were made are as follows:

1. The fabric to be entirely of wool of the best quality, well woven and finished, and free from imperfections.

2. To weigh 5 1/4 pounds avoirdupois per piece or bolt of 40 yards, 18 inches wide.

3. The yarns to be well and evenly spun; the warp and filling to contain not less than 34 threads to the inch; the warp to be two ply and the filling one ply, properly twisted.

4. The fabric to have a tensile strength of not less than 65 pounds to the warp and not less than 45 pounds to the filling in test pieces 2 inches in width. In making the tests for the tensile strength of a delivery of bunting such bolts as the inspection officers may designate shall be selected to represent the delivery this present for acceptance. Six test pieces shall be taken from each bolt so selected for test, two from each end and two from the middle of the bolt; and if the results present no marked irregularities the average of the results so obtained shall be taken as the tensile strength of the bolt under test.

5. The colors to be practically "fast colors," stable when exposed to the light or to the action of fresh water or of salt water. The shades to conform to the standard samples of bunting held at the Navy Yard, New York, N. Y. Chemical tests also shall be applied to determine the stability of the colors.

6. The water tests shall be as follows: Strips of colored bunting wrapped with white bunting shall be soaked in fresh water, and other strips prepared in like manner shall be soaked in sea water for a period of twenty-four hours. Under these soaking tests no change of color or running of colors into the white bunting will be tolerated. The sea-water test will not be applied to green bunting.

7. No marked change in color will be tolerated after exposure to the weather for ten days, thirty hours of which period must be bright sunlight.

8. Each piece to be neatly and evenly rolled upon a wooden roller and wrapped in paper. The wrapping to be closed at each end by a paper label of the color of the bunting and plainly marked with the number and year of the contract.

9. Should unsinged bunting be required, the requisition will so state.

The specifications call for a fabric 18 inches wide, weighing 2.1 ozs. per running yard, and having 34 threads of warp and 34 threads of filling per inch, making the average worsted number of the yarn in the cloth 16.7. The analysis of a sample of the bunt-

ing received from the Navy Department showed the finished numbers of the worsted yarn to be 2/28s warp and single 18s filling. In this connection it will be of interest to manufacturers to compare the American and English prices per running yard:

	Duty Paid	Free of Duty
N. E. Bunting Co.	$ .175	$ .175
U. S. Bunting Co.	.169	.169
C. B. Brook & Co.	.136	.101
Nostrand-Reynolds	.135	.100

The publication of the bids in April attracted immediate attention in all parts of the country, and there were many vigorous protests from the press against awarding the contract for the bunting in American flags to a foreign manufacturer. The Legislature of Massachusetts on May 29 passed the following resolution of protest:

Whereas bids for the supply of bunting for the manufacture of the United States flags have been received by the Navy Department of the United States from foreign firms or corporations in response to advertisements for bids issued by the said department: Be it

Resolved, That the General Court of Massachusetts hereby protests against the granting of any contract to any foreign person or corporations for the supply of bunting for the flag of the United States as being unwarranted, unpatriotic, and improper.

Resolved, That copies of these resolutions be transmitted by the Secretary of the Commonwealth to the Secretary of the Navy Department of the United States, and to the Senators and Representatives in Congress from Massachusetts.

The opposition to the acceptance of the foreign bids was so general and emphatic that the matter was referred to Secretary of the Navy Daniels, who had made no decision when this issue went to press. We are informed that the Secretary asked the two American bidders to show that they were in active competition with each other. The Secretary stated it would be a long time before the bid would be awarded to either firm unless he became satisfied on that point.

—÷—

Cotton was an article of commerce in Italy long before its introduction into England. In the 13th and 14th centuries Milan and Florence, Venice and Genoa were important markets from which raw cotton was distributed to the workers of the Netherlands, who subsequently introduced the industry into Lancashire.

The Best in Cloth Analysis

Complexity is a serious fault in the prevailing methods of textile calculations in all countries. Outside of English speaking countries this defect is an unavoidable result of the confusion of textile weights and measures, which makes it impossible to solve a textile problem by any other than involved and complicated operations. In English speaking countries, where a high degree of uniformity of textile weights and measures prevails, textile calculations are involved in unnecessary complications and for no other reason than an unaccountable unwillingness of instructors in this branch of textile training to adopt the most direct methods. The persistence with which the textile schools cling to cumbersome processes of textile reckoning is illustrated by a new book, "The Analysis of Woven Fabrics," written by Prof. Aldred F. Barker, of Leeds University, and Eber Midgley, lecturer on cloth construction at the Bradford Technical College. There are a number of faults in details, including frequent arithmetical errors; expressing shrinkage by compound numbers instead of decimals; and stating the loss of weight at the same amount for the worsted yarn in a costume cloth, and for the cotton warp and mohair filling in a dress fabric. We want, however, to direct particular attention to the unnecessary complication in which the Barker-Midgeley calculations are involved. A few typical examples from the chapter on analysis will illustrate this. The first relates to a worsted costume cloth.

A sample 3 inches square (9 square inches) is cut and weighed. Then 36 threads (3 yards) each of the warp and filling yarn are raveled and weighed. The threads per inch are counted, and it is assumed that the warp yarn has contracted from 3 1/4 to 3 inches in weaving and finishing, the filling from 3 1/2 inches to 3 inches, and that the average loss of weight has been 6 per cent. The data for this problem are as follows:

Weight, 3 x 3 in.	23.4 grains
Warp, 3 yds.	2.16 grains
Filling, 3 yds.	2.3 grains
Threads per inch	66 warp x 62 filling
Width finished	56 inches

The yarn counts and weight of cloth are calculated by the following method:

Worsted warp: (12.5 × 3.25 × .94 × 3) ÷ (2.16 × 3 × 100) = 17.7 or 2/36s.

Worsted filling: (12.5 × 3.5 × .94 × 3) ÷ (2.3 × 3 × 100) = 17.8 or 2/36s.

Weight of cloth: (23.4 × 56 × 36 × 16) ÷ (3 × 3 × 7,000) = 11.5 ozs. per yd., 56 in.

There is also this example in the analysis of a mohair fabric:

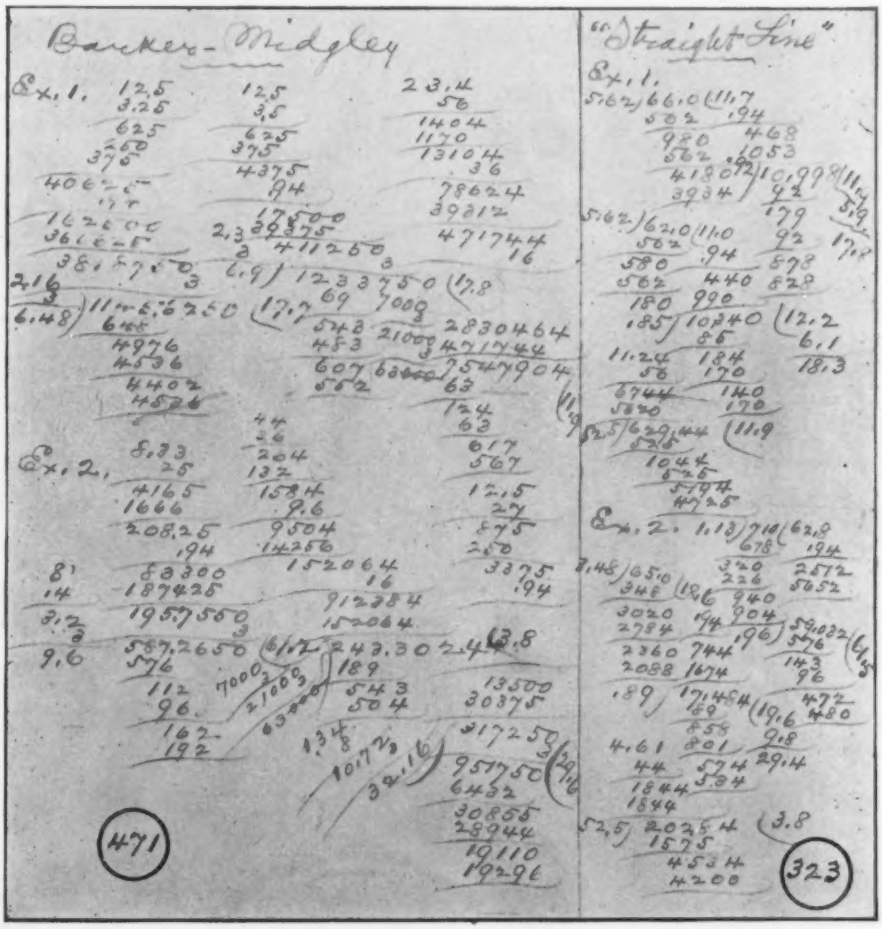
The yarn counts and weight of cloth are then calculated as follows:

Cotton warp: (8.33 × 25 × 94 × 3) ÷ (8 × .4 × 3 × 100) = 60s or 2/100s cotton.

Mohair filling: (12.5 × 27 × 94 × 3) ÷ (8 × 1.34 × 3 × 100) = 30s mohair.

Weight of cloth: (44 × 36 × 9.6 × 16) ÷ (3 × 3 × 7,000) = 3.8 ozs. per yd., 44 in.

An inspection of these formulas discloses at once their roundabout and complicated



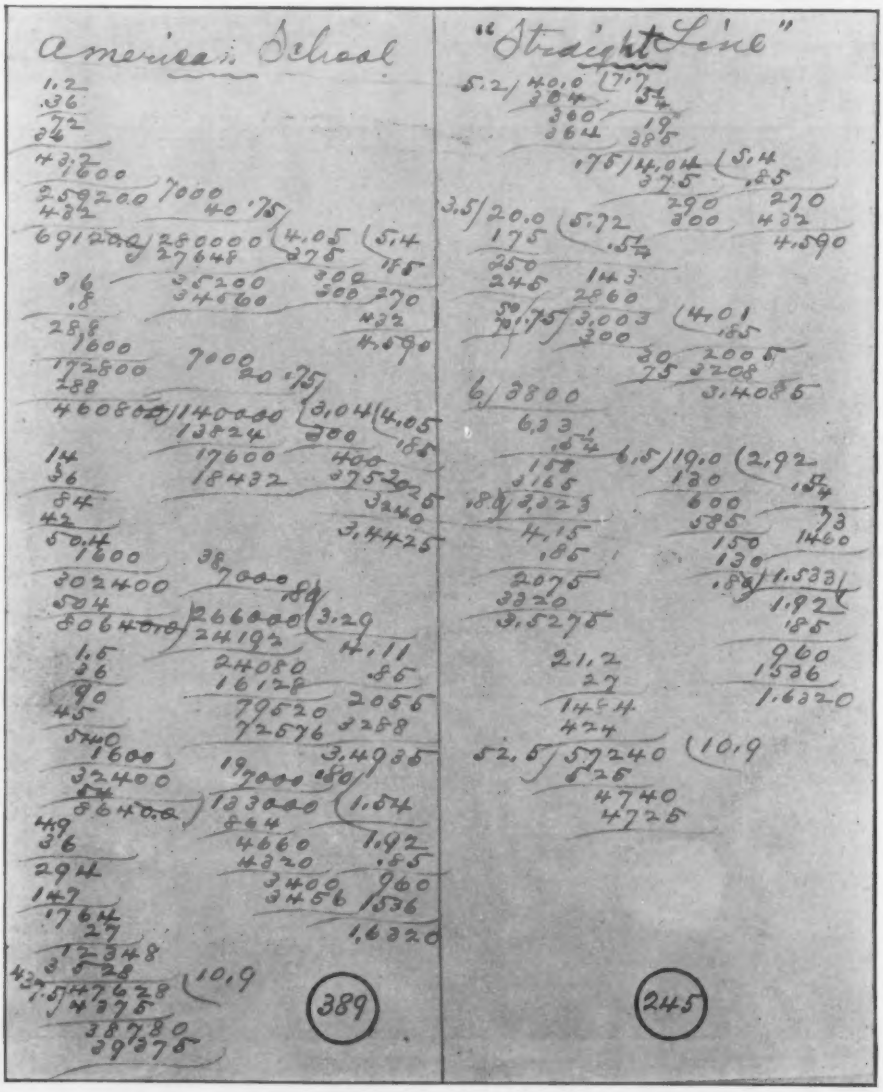
Weight, 3 x 3 in.	grains 9.6
Warp, 3 yds.	.4
Filling, 3 yds.	1.34
Threads per inch	71 warp x 65 filling
Width	in. 44
Warp shrinkage	3⅛ to 3
Filling shrinkage	3⅜ to 3
Loss of weight, 6 per cent.	

character, it being impossible to carry the "reason why" in mind as one traces their winding course. The unnecessary labor involved is shown by the accompanying calculations, 471 figures being required for the solution of these two problems by the

Barker-Midgley method and 323 figures by the "straight line" process. The Barker-Midgley method is not only cumbersome, but it lacks the necessary degree of accuracy. Although the first sample taken for analysis contains 16 1/2 yards of warp yarn and 15 1/2 yards of filling yarn, the size of each is calculated from the weight of only 3 yards, a length much too short to give a fair average and sufficiently accurate results.

Another defect is that for the large number of wool fabrics from which the yarn cannot be raveled, the Barker-Midgley method is unsuitable, it being necessary then to estimate the different sizes from the average yarn number. For such cases the weight of all the yarn in the sample must be taken as a basis.

The Barker-Midgley method is thus found to be impracticable for many cloths, while it



is complicated, laborious and inaccurate for all fabrics for which it is suited. Unnecessarily defective as are the roundabout calculations, this Yorkshire system becomes even more inexcusable when the authors attempt to make short cuts, as they have done in the analysis of a cotton fabric, the following being their method of determining the yarn sizes:

By employing Gaunt's standard weights, the counts of the warp and weft are found to be:
1. Various colors of warps = 2/60 cotton.
2. Weft = 2/60 cotton.

The "Gaunt standard weights" are new weights made to correspond with certain constant relations between the weight of 3 yards of yarn and the yarn number, and between the grain weight of 4 or 9 square inches of cloth and the ounces per yard 54 inches wide. A formidable list of these weights is given, and then the reader is encouraged to make others to suit his own fancy or imaginary needs:

Standard weights may be made to give the ounces per yard for any dimension of cloth.

If the analyst uses the right weight he gets the correct result, but if he picks up the wrong one he will be at sea without knowing it, and if he loses the "Gaunt" weights he ceases to be an analyst by the "standard weight" system. A still more serious objection to the use of these "standard weights" is the danger of their becoming the seed of variations in our established weights and measures. Important results may follow an apparently trifling innovation. Peter the Great took a few English ship carpenters to Russia in 1698 and as a result the English inch (Russian duim) is today the standard for the linear measures of the Russian Empire. It happened that the English carpenters contributed to the uniformity of measures, but the use of "standard weights," as proposed by Messrs. Barker and Midgley could by no possibility have the same result. If the last-named standards became established they would contribute only to confusion.

Unfortunately the faults we have pointed out in the Barker-Midgley methods are not confined to Yorkshire. They illustrate a defect in textile calculations as taught in the United States as well as in the United Kingdom. It is but a short time ago that a graduate of one of the leading American textile schools showed us the method of cloth analysis he had learned at the school and was using in the mill. Here is one of his school problems in analysis:

Warp, face 40 E	grains 1.2
Warp, back 20 E	.8
Filling, face 38 P	1.4
Filling, back 19 P	1.5
Weight, 1 sq. in.	4.9

Shrinkage in length

Wrap, 25 per cent.
Filling, 20 per cent.
Loss of weight, 15 per cent.

The yarn sizes and weight of cloth were determined as follows:

Face warp: $(40 \times 7{,}000) \div (1.2 \times 36 \times 1{,}600) = 4.05$ runs.

$4.05 \div .75 = 5.4$
$5.4 \times .85 = 4.59$

Back warp: $(20 \times 7{,}000) \div (.8 \times 36 \times 1{,}600) = 3.04$ runs.

$3.04 \div .75 = 4.05$
$4.05 \times .85 = 3.44$

Face filling: $(38 \times 7{,}000) \div (1.4 \times 36 \times 1{,}600) = 3.29$ runs.

$3.29 \div .80 = 4.11$
$4.11 \times .85 = 3.49$

Back filling: $(19 \times 7{,}000) \div (1.5 \times 36 \times 1{,}600) = 1.54$ runs.

$1.54 \div .80 = 1.92$
$1.92 \times .85 = 1.63$

Weight of cloth: $(49 \times 36 \times 27) \div 437.5 =$ 10.9 ozs.

The method of the American school is illustrated by the accompanying calculations, which are compared with the "straight line" operations for the same problem, showing 389 figures for the school method, and 245 for the "straight line." Like the Barker-Midgley method, the American analysis is complicated, laborious and inaccurate. It would naturally be expected that the most improved methods of calculation would be adopted by textile instructors. As a matter of fact the roundabout methods are most persistent and flourishing in the schools, as if mathematical prolixity were one of the objects of textile calculations. There are few English text books on textile calculations that are more complicated than this Barker-Midgley volume, but Prof. Barker offers it to the textile trade as if it were a step toward perfection:

The present treatise may be regarded as a further step towards the more perfect application of scientific method, ensuring that scientific attribute "pre-vision" in the textile industries.

Prof. Barker's mistake is in his conception of the "scientific method." That method in textile calculations calls, not for a straining after something in the higher realms of scientific research, but for a return to the proposition that a straight line measures the shortest distance between two points.

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A "Pure Cotton" Bill

The eleventh Congressional district of Georgia borders on the Atlantic coast, consists of fifteen counties, has an area of 10,649 square miles, or more than that of the entire State of Maryland, and a population of 208,463, or less than that of Providence, R. I. Although this Congressional district includes nearly one-fifth of the total area of Georgia, it produced in 1912 less than one twenty-fifth of the upland cotton crop of that State. Its stronghold is in the growing of Sea Island cotton, of which it produced 29,255 bales in 1912, or exactly two-thirds of the Sea Island crop of Georgia, and nearly 40 per cent. of all the Sea Island cotton grown in the United States in the same year. These statistics are not of general interest, but they are of some special interest in connection with the fact that the district is now represented in Congress by the Hon. Randall Walker, of Valdosta, who is serving his first term, which expires on March 4, 1915, and that Mr. Walker has recently introduced a bill (H.R. 17,386), which provides for labeling cotton fabrics to show, not only the percentage, by weight of cotton present, but also the percentage by weight, of Sea Island or Egyptian cotton in the goods. Failure to conform to the provisions of the bill are to be punishable by fine or imprisonment or both. Following is an extract from the measure:

Any cotton fabric shall be deemed to be misbranded within the meaning of this act in any one of the following cases:

First, if the fabric or contained thereof fail to have securely attached thereto a label containing in plain type a statement of the following facts: (a) The percentage, by weight, of all cotton fiber contained in the fabric; (b) The percentage, by weight, of Sea Island or Egyptian cotton respectively, contained in the fabric.

The terms "Sea Island cotton" and "Egyptian cotton" is to include cotton of the varieties commonly so known which are grown on the mainland of the United States as well as in the Sea Island or in Egypt.

Violators of this proposed law will be guilty of a misdemeanor and upon conviction thereof shall be fined not less than $100 nor more than $5,000, in the discretion of the court, and in case natural persons, may, in addition, be punished by imprisonment for not less than 30 days nor more than one year, in the discretion of the court.

No one will question the value of the Walker bill in Mr. Walker's campaign for reelection this fall. His district with less than 20 inhabitants to the square mile, polled only 8,445 votes in the last presidential election, an average of 79 voters per 100 square miles. To canvass successfully an area larger than Maryland with a population so scattered and so unwilling or unable to vote, it is necessary to have arguments that strike home, particularly if the incumbent has ambitions and active rivals. The Walker bill requiring the labeling of cotton goods to show the quantity of Sea Island cotton present, will be a winner when waved before the voters in the eleven counties where Sea Island cotton is grown, and can be kept out of sight in Camden, Charlton, Glynn and Jeff Davis counties, which produce no cotton of that particular variety. Moreover Mr. Walker should carefully avoid reference to the fact that his bill will put the stamp of inferiority on upland cotton, for that variety has its friends, even in his district. He should also put the soft pedal on the fact that his bill aims to distinguish the high grade cotton grown in Egypt, unless he is sure that the name "Egyptian" will alone carry sufficient obloquy. Above all Mr. Walker should avoid letting his constituents know that his bill would be a dead letter if made a law, for of course the different kinds of cotton cannot be distinguished from one another when made into cloth. We are encouraged to believe that Mr. Walker has thought of this point already, for we find we had dodged the difficulty completely by this little clause in his ingenious bill:

The secretaries of the Treasury, Agriculture and Commerce are empowered to make uniform rules and regulations for carrying out these provisions.

Nothing in the Walker bill demonstrates more conclusively the author's genius in the manipulation of cotton politics in the 11th Georgia district than that clause, putting all the work on Secretaries McAdoo, Houston and Redfield. These three gentlemen will probably not object, knowing as they must that the bill is introduced for buncome, that is, for the sole benefit of the Representative from the eleventh Georgia district.

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The Threatened Embargo on Egyptian Cotton

Since our last issue appeared the Department of Agriculture has had under consideration the question of prohibiting the importation of Egyptian cotton in order to prevent the spread of the pink bollworm. The suggestion that the danger might be avoided if cotton spinners made a practice of burning the seed obtained from the cotton used in their mills has been favorably received by the Department. In order to determine the sentiment among manufacturers regarding this matter, the Secretary of the Federal Horticultural Board has sent the following letter of inquiry to cotton manufacturers throughout the country:

Washington, D. C., June 25, 1914.

On May 25 a communication from the Secretary of Agriculture, inclosing a circular of information on the pink bollworm, was addressed to a number of users of imported Egyptian cotton, calling attention to the danger to the cotton industry in this country from this insect, and asking them to agree to destroy the picker waste from all foreign cotton. A copy of the circular referred to is enclosed herewith. Your name is included in a further list of users of Egyptian cotton furnished by C. J. H. Woodbury, secretary of The National Association of Cotton Manufacturers. The pink bollworm is found in the seed which occur in small numbers in baled Egyptian cotton, and similar infested seeds may occur in other foreign cottons. The burning of the picker waste and seeds will very largely eliminate the danger of the introduction of this pest, and may offset the necessity of promulgating regulations governing and restricting the entry and use of such foreign cotton in this country. We will, therefore, be very glad to be definitely advised that from this time on you will burn all picker waste, including seeds, from Egyptian cotton, daily. Many cotton mills have indicated their willingness to take this action and that the burning of the picker waste has already been instituted.

Smallpox in Cotton

Ten cases of smallpox among the picker and card room operatives of the same cotton mill at Milnrow, near Rochdale, Eng., have led to the general conclusion that the infection resulted from the handling of Texas cotton. Dr. Chadwick, the local medical officer, it is reported shared in this belief, his views being stated by the Guardian as follows:

Raw cotton has often been suspected as a conveyor of small-pox into this country, but absolute proof is impossible in most cases. All that the medical officers have to go upon is circumstantial evidence. The majority of the cases of small-pox in Lancashire in the last ten or fifteen years have occurred in the South-east Lancashire towns, where cotton is handled in the initial stages of its manufacture. Most of the outbreaks have begun in mill workers, but that fact of itself does not appear conclusive when one considers that the populations of these towns are almost wholly dependent upon the cotton industry for their livelihood. In the present case the medical officer thinks it is fairly well established that the infection was derived from one or two bales of cotton which were handled in the mill about twelve days before the first of the infected persons showed symptoms of the disease. The cotton from these bales in its progress through the stages of manufacture passed through different hands on different days, and the order of appearance of the disease in ten patients followed pretty closely the order in which they handled this particular lot of cotton.

Dr. Chadwick says that small-pox may almost be regarded as an endemic disease in the Texas cotton fields, from which most of the cotton used in the Rochdale district comes. It is also prevalent in the cotton fields of Egypt. Raw cotton handled by infected persons would of course gather germs of the disease. In the bales the greater number of the germs die, but occasionally they survive and introduce the disease among the people who handle the cotton in our mills.

On the other hand the following opinion of a Stockport medical officer is cited to show how slight is the danger of smallpox infection by the handling of cotton:

The time which elapses between the gathering of the cotton and its appearance in the card room or spinning room would probably be sufficient to reduce the infectivity of the material to a negligible quantity, unless infectivity was actually introduced into the mouth of an infected person. Piecers are supposed to piece together broken strands without moistening the hands, but I have on several occasions observed that they do so by means of saliva, introducing the thumb and forefinger to the mouth and licking the palms of the hands.

I am inclined to the view that although the imported raw cotton may be handled en masse by a large number of people and in more detail by

winders, reelers, splicers, doublers, and doffers, the only employes who would be subject to infection would be those in the blowing rooms, the card rooms, or the spinning rooms.

The probability of the infection of small-pox arising from imported raw cotton is very small under ordinary circumstances as the coincidence of several contingencies is necessary for its occurrence. (1) Infection during gathering and importation is carefully guarded against. (2) Considerable attenuation of infectivity in any infected material occurs before it is dealt with by a piecer. (3) The probability of the strands of cotton breaking just at a point where a portion of infected material is situated is small. (4) An operative only occasionally uses the mouth as a means of facilitating the process of piecing. (5) It is necessary for the infecton to occur for the individual to be susceptible to the disease.

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The International Federation to Grow Cotton in India

An interesting feature of the recent meeting of the International Cotton Federation's Committee at Paris was the announcement of a plan to establish a model cotton plantation in the Punjab for the purpose of educating the Indian cotton growers in the production of better cotton and more of it. The Government of the Punjab has offered to give a free lease of 7,500 acres of land for twenty years. Government irrigation works will be ready at the end of this year. It is proposed to grow American cotton. The district is at present uninhabited, but ten villages of sixty houses each will be established and no difficulty is expected in getting a supply of Punjabi to work the plantation on the half-share system. Advances will be made to the tenants in order to get the work started. The new company is to begin with a capital of $300,000, and all nationalities affiliated with the Federation are to have an opportunity to subscribe. The cotton is to be sold in the best market and no restriction on the distribution is to be tolerated. Sir Charles Macara, president of the Federation, had this to say about the enterprise:

> In view of the advances which had already been made it was not too much to expect that before many years had passed the Indian crop would be almost as large as the American crop. When that came about all the world would benefit, because shortage of the raw material was the chief evil from which the industry at present suffered.

At the close of the Paris meeting President Macara issued the following statement on the cotton trade and the necessity for regulating the price of cotton and goods by getting cotton manufacturers throughout the world to restrict their running time in accordance with a prearranged plan:

> I do not think the outlook was ever blacker all round, though the cotton crop has reached huge dimensions, and though there never was a larger number of mills or the capacity for a larger output. In England the spinners of the finer counts are still making a profit, or, at any rate, are holding their own, but the bulk of the trade is suffering from depression as severe as was ever known. Large sums of money are being lost. Owing to the variety of the interests concerned we cannot get organized short time at present, though we have made two efforts in that direction, and though there is a reasonable hope that if restriction of output were regulated on a scientific basis there would never be any dangerous bad trade. Much injury has been done by the building of an excessive number of new mills by people outside the trade, an obviously foolish proceeding at a time like this, when there is shortage of labor, shortage of raw material, and shortage of demand for goods. Events prove that no single country can regulate an industry as vast as the cotton industry, and that as crises arise the only way to meet them with a prospect of avoiding heavy losses to both employers and employed is by organized restriction of production.

In his address before the International Committee President Macara stated that he had had a conversation with the American Ambassador at London, who fully realized the importance of closer cooperation between growers and spinners. President Macara expressed the hope that the spinners of the United States might be induced to become contributing members of the International Federation.

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Working Out Well

The new method put into effect some time ago for determining the average yarn count in cotton cloth, as specified in Schedule 1, is said to be working out well. This method results in the following formula: Divide the thread count per square inch by the weight in grains of one three-hundredth of a square yard and the quotient will be the average number. This system is being put into operation at the chief ports of the country.—New York Times.

How the Underwood Tariff is Affecting American Labor

All of the textile schedules of the Underwood tariff went into effect on Jan. 1, 1914, when the rates on wool goods became operative, the remainder of the textile tariff having been in force from October 3, the date on which the bill was signed. April of this year was the fourth month during which the new duties had been collected on all kinds of textile goods, and the imports for this period are therefore a fair indication of the competition that textile manufacturers may expect under this law. As the foreign trade becomes more familiar with our textile markets the importations are likely to increase, so that the figures for the first four months of its operations afford a conservative basis on which to form a judgment as to the effect of the new tariff. For those who desire to examine the importations in some detail, table No. 1 will be useful.

Summarized by industries the total importations for the four months are shown in table No. 2, which gives a clearer view of the conditions to which we desire to call attention:

The woolen industry is the chief sufferer from the increase in foreign competition, this being due to the woolen duties having been suddenly lowered from a much higher level than were the rates on other class of textiles.

The salient fact disclosed by this exhibit is that $83,813,000 worth of textile goods came into the United States during the first four months under the Underwood tariff, as compared with $64,780,000 in the corresponding period of 1913, an increase of $19,033,000 for the four months, or an increase at the rate of $57,099,000 per year. This indicated annual increase of textile imports is divided among the different classes of goods as follows:

Wool	$32,226,000
Cotton	12,621,000
Silk	9,024,000
Fiber	2,127,000
Artificial silk	1,101,000
	$57,099,000

TABLE NO. 1. IMPORTATIONS OF TEXTILE GOODS FOR THE FOUR MONTHS ENDING APRIL, IN 1913 AND 1914. (000 OMITTED)

	1913					1914				
COTTON	Jan.	Feb.	March	April	Total	Jan.	Feb.	March	April	Total
Cotton thread	407	360	442	641	1,850	381	366	458	362	1,567
Cloths	958	727	721	690	3,096	1,682	1,454	1,402	1,003	5,541
Handkerchiefs	14	29	36	20	99	16	14	20	17	67
Laces	4,022	2,894	2,645	2,229	11,790	3,671	2,903	2,954	2,096	11,624
Plushes, velvets	68	91	105	105	369	91	80	94	84	349
Waste or flocks	160	225	259	182	826	146	104	99	110	459
Wearing apparel	240	308	286	281	1,115	544	713	783	694	2,734
All other apparel	351	409	450	374	1,584	201	197	225	173	796
All other manufactures of cotton	508	496	432	520	1,956	802	772	975	979	3,528
Total manufactures of cotton	6,732	5,553	5,380	4,796	22,461	7,527	6,606	7,013	5,522	26,668
FIBRES										
Total manufacture of	6,569	6,517	7,189	7,118	27,293	6,324	7,115	7,836	6,827	28,102
SILK										
Total manufactures of	2,466	2,009	2,437	2,008	8,920	3,399	2,810	3,294	2,425	11,928
Artificial silk	359	248	257	204	1,068	323	315	401	414	1,453
WOOL										
Carpets and carpeting	300	425	311	302	1,338	363	410	379	451	1,603
Cloths	625	464	328	257	1,674	1,723	1,564	1,396	1,282	5,965
Dress goods	345	262	225	226	1,058	1,217	782	740	321	3,060
Wearing apparel	104	113	165	90	472	213	142	170	124	649
Press cloths	....	....	....	....	....	25	4	14	806	849
Wool waste	....	....	....	....	....	129	175	194	132	630
All other	92	85	95	113	385	542	484	757	791	2,574
Hair of angora goat, alpaca, etc.	....	....	....	....	....	210	230	229	227	896
Total manufactures of	1,468	1,352	1,127	991	4,938	4,668	3,795	3,884	3,333	15,680

Let us see what this means. The U. S. Census of 1909 shows 742,529 wage earners employed in textile manufacturing, producing $1,225,686,444 worth of goods per year, and receiving $250,514,233 in wages. At that rate of production and earnings, the annual increase of $57,099,000 in the imports of textiles under the Underwood law is depriving 34,727 textile operatives of employment who would otherwise be receiving $11,716,542 in wages in American mills. The existing depression in the textile industry makes this conclusion unavoidable. If the machinery in all the mills were fully employed the increase in imports might be considered an indication of prosperity. But the machinery is not fully employed. A considerable portion of it and a large number of the mill operatives are idle, making it certain that the increase in textile imports is depriving approximately 35,000 American operatives of their regular means of livelihood.

TABLE NO 2. SUMMARY OF TEXTILE GOODS IMPORTED. (000 OMITTED.)

		Cotton	Fiber	Silk	Arti. Silk	Wool	Total Textiles
Jan.	1913	6,732	6,569	2,466	359	1,468	17,594
	1914	7,527	6,324	3,399	323	4,668	22,241
Feb.	1913	5,553	6,517	2,009	248	1,351	15,679
	1914	6,606	7,115	2,810	315	3,795	20,641
Mar.	1913	5,380	7,189	2,437	257	1,127	16,390
	1914	7,013	7,836	3,294	401	3,884	22,428
April	1913	4,796	7,118	2,008	204	991	15,117
	1914	5,522	6,827	2,425	414	3,333	18,422
Total (4 mos.)	1913	22,461	27,394	8,920	1,068	4,938	64,780
	1914	26,668	28,102	11,928	1,435	15,680	83,813

These facts show unmistakably the lack of business and political judgment on the part of the Democratic Congress and President last year when they disregarded all warnings and reduced the rates in the textile schedules far below the limit of safety. To comment on the present situation would be but to repeat the advice we gave before the Underwood bill became a law. It was in anticipation of such a result that in July, 1911, we gave this warning to the revisionists at Washington:

> We believe that the Underwood rates on both raw materials and goods are too low. Our belief that the Underwood rates are too low is based on the experience under the Wilson bill sixteen years ago and on the more recent experience of Canada under the preferential tariff. . . . With the exception of the three years under the Wilson law, wool manufacturing in this country has for forty-four years been developed under tariffs identical in all essential respects with the Payne bill. Regardless of one's opinion as to the merits or demerits of that law, few will be found to deny that it has maintained arbitrary conditions in the business of manufacturing wool goods. Our wool manufacturers and their operatives have learned and followed their trade under those conditions. Our woolen and worsted mills, the machinery and processes of manufacture, the fabrics and the raw material have all been made to conform to the same conditions. Now regardless of the results of calculations to determine the protection required, it is certain that an industry thus developed should not be exposed suddenly to conditions of even theoretically equal competition with foreign mills. The change should be made carefully and gradually so as to afford time to adjust the industry to new and unknown conditions. This course may not appeal to the radical who knows nothing about the industrial and commercial organization of the business, but it will commend itself to those who are familiar with the details of wool manufacturing, who have the public welfare in mind, and who desire to avoid not only business depression, but the reaction toward a restoration of present conditions that would inevitably follow such depression.

And it was with such a result in mind that we gave the Democratic party this warning in April, 1913, when they had announced their program of revision for the textile schedules:

> The meaning of such changes is clear to everyone familiar with wool manufacturing. It is our deliberate judgment that such a change would prove of serious damage to the American industries. We are far from denying that in the course of time the woolen and worsted industry with a net protection of 35 per cent. will not become able to compete successfully with foreign mills. The point we wish to emphasize is that the change from the unequal specific duties to the equitable ad valorem tariff in itself will bring competition that the American trade is not only unprepared to meet, but with which American manufacturers have had no opportunity to become familiar. If on top of this and in addition to this the ad valorem rate on goods is suddenly fixed at a point that should be reached only after the lapse of several years, then it is certain that the change

will prove disastrous to both labor and invested capital. These facts leave no escape from the conclusions that, not only free wool, but the sudden change to 35 per cent. on goods is in violation of the Democratic platform and of Gov. Wilson's promises that the tariff would be revised so as "not to check, but to aid, not to embarrass, but to quicken."

The pity is that President Wilson and the Democratic Congress, which followed him so obediently, did not accept and act upon the advice we gave them before the tariff was revised, instead of going ahead in their stiff-necked way and learning their lesson after the mistake had been made.

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Cotton Spinners as Cotton Growers

The financial reports of the English Fine Cotton Spinners' and Doublers' Associations are of special interest in the United States because of the combination of cotton growing on a 30,000-acre plantation in Mississippi with the business of cotton spinning in England. At the recent meeting of the stockholders of this English corporation the following very gratifying financial statement was made:

	1913-14	1912-13	1911-12
Gross profit	$3,791,733	$3,501,134	$3,126,038
Depreciation	685,000	683,000	683,000
Debent. interest ..	99,000	99,000	99,000
New issue expenses	18,771	...	21,525
Net profit	2,447,961	2,319,134	1,879,512
Brought forward..	1,251,837	1,012,702	964,324
Available	3,799,798	3,358,847	2,843,937
Pref. dividend	735,000	735,000	704,154
Pref. ord. div.	91,875	882,000	881,980
Ord. dividend	882,000	882,000	881,980
To reserve	735,000	490,000	245,000
Carried forward ..	1,255,923	1,261,837	1,012,702
Share bonus (from reserve)	...	2,205,000	...

Lord Rotherham, chairman of the board of directors, referred to the Mississippi enterprise in these words:

So far as the Mississippi cotton plantations were concerned, considerable progress had been made, despite the climatic disadvantages, which had been very serious. Their managing director (A. H. Dixon) and Mr. McConnell, their vice-chairman, had lately visited the property, and they were as confident as ever that in due time the results of this investment would not only equal but perhaps surpass their original anticipations. The most scientific methods were being adopted to produce exactly the special kind of staple which their particular trade required, and by the year 1915, he was told, the entire estate would be growing that particular kind and no other. This ought to give them a very substantial advantage in the market.

Since the English Association bought the plantation in Mississippi, that State has enacted laws to prevent the control of large areas of land by foreign interests. It was understood at the time that the purchase of the estate by the English corporation was the chief factor in leading the Legislature to enact legislation against further purchases of Mississippi land by foreigners. If that is true and the example set by Mississippi extends to other States the Fine Cotton Spinners' and Doublers' Association, by purchasing the Mississippi plantation, rendered a service of inestimable value to the people of the United States. The industrial and commercial effects of such control of the land are minor features of the evil. Of all possible forms of monopoly there is none worse than that of land, and none more irreconcilable with popular government such as ours is designed to be. England, Ireland and Mexico supply examples of this evil in its various forms. A case of more recent development is found in the British East Africa Protectorate. Before its conquest by Great Britain that country, with an area about double that of the United Kingdom, was owned by 4,000,000 natives. The situation at the present time is thus described by the Manchester Guardian:

The best parts are now in the hands of a body of fortunate and enterprising English colonists or squatters. Of these the one whose name is perhaps most familiar in the neighborhood of Manchester is Lord Delamere, who, according to Mr. Harris, possesses 150,000 acres of British East Africa and is distinguished as a hunter of big game. To give a chance of self-maintenance to those of the natives who are not solely working for hire on the lands now held by the white settlers, the Government has set apart "reserves" of land. The total area of these is large, but when distributed between the dispossessed heirs of the whole country it does not go extravagantly far. The most thickly peopled reserve provides less than an acre a head for its occupants. As the intensive methods of agriculture which are practised in the suburbs of Paris have not yet made any headway among the aborigines of East Africa, they can hardly be threatened with the moral disadvantages that attend on extreme wealth. Still, most of them are able to keep themselves alive by tilling their own land. This is what the Government intended.

It is useless to point out the undoubted fact that the East African conditions cannot be duplicated in the United States. Neither can Irish conditions be duplicated in Mexico, or Mexican conditions in England. Nevertheless if the ownership of land in this country becomes concentrated in a compara-

tively few hands, then the United States will supply an example of the same evil, although in a different form, that exists in the countries we have named. Last month we gave a report of the argument by John A. Fox, manager of the Mississippi River Levee Association, before the National Association of Cotton Manufacturers. Mr. Fox claimed that 13,500,000 acres, an area nearly three times the size of Massachusetts, could be reclaimed by levees at a cost of only $57,000,000. If that claim is well founded the levees should be built, but before the work is done precautions should be taken that when the land is relieved from the flood it should be divided into small holdings worked by the owners, and not pass into the hands of a few individuals or corporations to be worked by renters or hired men.

Colonial Cotton

The British Cotton Growing Association reports a small increase in the amount of cotton handled by the association in 1913, and states that the rate of increase was below that of previous years owing to the unsatisfactory crop in Uganda. Following is a statement of the business for a series of years:

	Bales.	Value.
1908	16,713	£224,888
1909	20,028	225,078
1910	21,388	296,160
1911	27,673	373,583
1912	40,094	507,122
1913	47,466	661,227

The following subscriptions to the capital stock are reported for the year:

North and North-East Federation	£4,813
International Federation	3,318
Operatives and others	1,657
	£9,788

The total amount of capital paid in to date is $2,304,524, leaving $145,476 still to be issued. The cotton spinners, manufacturers and operatives are asked to take up this stock, and the Council of the Association state that an additional $245,000 will be needed before the end of 1915 to provide for the normal growth of the business. They regret, however, that "they find it impossible to recommend any means of raising this sum during the immediate future."

Textile Manufacturing and the Climate of Oregon

Several weeks ago we received the following inquiry from an Oregon correspondent:

> Will you be so kind as to put me in the way of securing information as to the advantages of a moist climate such as the Williamette Valley, Oregon, for textile industries? Such a courtesy on your part will be greatly appreciated.
>
> Williamette.

At our request "Willamette" sent us a copy of the Portland record of temperature and humidity at 5 p. m. on each day of the year 1912. We obtained from Hartshorne's tables the moisture regain for worsted corresponding to the daily records at Portland. The minimum, maximum and average by months are given in the following table, to which are annexed the corresponding record of worsted regain at Boston and Bradford (Eng.) for the same year:

Highest, Lowest and Average Regain for Worsted at Portland, Boston and Bradford for each month of 1912.

Portland

	Low	High	Av.
January	15.5	26.2	21.7
February	10.8	26.0	17.5
March	9.5	25.6	13.6
April	12.3	21.7	16.7
May	8.0	21.0	15.5
June	7.3	24.4	14.1
July	3.8	20.6	10.4
August	4.1	16.9	8.7
September	4.5	10.3	7.1
October	5.5	12.9	9.1
November	8.5	14.2	11.2
December	7.6	14.2	11.2
12 months	3.8	26.2	13.

Boston

	Low	High	Av.
January	21.8	24.9	23.7
February	15.4	24.9	20.1
March	13.1	28.2	20.2
April	12.4	28.2	20.6
May	11.0	27.5	18.3
June	12.1	22.7	15.6
July	12.2	22.8	17.3
August	14.6	24.2	18.3
September	15.6	23.7	19.5
October	12.6	26.7	18.9
November	14.1	25.3	19.4
December	15.5	28.2	21.2
12 months	11.0	28.2	19.4

	Bradford		
	Low	High	Av.
January	20.4	28.2	24.7
February	20.0	27.1	24.4
March	21.1	26.7	23.5
April	15.2	26.7	22.3
May	15.5	27.1	22.9
June	16.6	27.1	21.8
July	16.5	26.3	22.1
August	17.8	27.1	21.9
September	18.8	25.2	22.2
October	19.2	28.2	23.5
November	19.6	26.0	22.9
December	20.4	27.0	23.6
12 months	15.2	28.2	22.9

This exhibit does not indicate that the climate at Portland is particularly well adapted for textile manufacturing. The average moisture regain is materially below that of Bradford or Boston, while the variations are much greater than at either of the two last named places. These defects in the Portland climate were especially pronounced during the last half of the year when the regain fluctuated between 3.8 and 20.6 per cent., both of these extremes having been touched in July.

Following is the monthly record of temperature and humidity at the three places:

	Portland			
	Temperature		Humidity	
	High	Low	High	Low
January	57.0	26.2	100	54
February	57.0	38.5	96	29
March	70.6	38.5	96	25
April	70.4	48.5	79	42
May	88.6	51.5	83	22
June	92.6	54.5	94	20
July	96.0	57.0	82	25
August	92.8	57.0	86	28
September	82.5	57.6	80	29
October	69.8	45.0	90	38
November	58.0	41.4	100	65
December	54.0	35.0	100	56
	Boston			
January	49.1	5.0	98	33
February	43.0	.4	98	38
March	52.0	13.0	100	35
April	62.0	31.2	100	36
May	71.6	46.0	100	30
June	78.0	54.0	93	38
July	83.5	61.0	92	40
August	80.0	55.7	95	52
September	76.8	43.0	95	55
October	64.5	40.0	100	39
November	63.0	25.9	94	44
December	53.3	16.0	100	32
	Bradford			
January	48.6	18.4	100	74
February	53.0	19.8	100	51
March	50.8	32.2	97	73
April	58.1	38.0	99	55
May	60.7	42.8	100	55
June	65.3	49.2	100	64
July	70.7	50.3	99	62
August	60.9	50.0	100	67
September	56.9	44.8	95	72
October	58.5	35.0	100	70
November	52.9	24.0	97	71
December	54.6	24.8	97	76

HOUSING AND FREE TRADE

Editor Textile World Record:

I was interested in your argument as to free trade and housing congestion in the April and May issues. According to one set of people the slums are the creation of drink; according to another, of capitalism. My own idea is that they are the outcome of a variety of causes. There are two or three points that I feel inclined to mention:

(1) Necessity to build model dwellings out of municipal funds arises only in respect of a small part of the population of any center. The old economists used to call this part the residuum and its equivalent upon a small scale is to be found in villages. Naturally the bulk is larger in the towns.

(2) The slums are not the worst in the industrial cities. Dublin is the worst in the land. London, Liverpool, Glasgow—centers receiving all kinds of people, many of whom are dependent on casual employment around the docks and in which commerce comes a long way before industry,—are probably next in rank.

(3) The prevailing evil in textile centers is ugliness, not tragically inadequate housing. The people live in what Ruskin called "brick boxes with slate lids," every house like every other, with as many houses to the acre as the building laws admit.

(4) English factory towns are not unique in ugliness. Elberfeld, Barmen, Roubaix, Lodz, for instance are as bad a sample as anything produced by free trade.

(5) Textile industrial towns have comparatively few slums as against the commercial cities and in them family incomes are much higher than in towns like Dublin, Liverpool, etc.

(6) Income is not an all-powerful determining factor. Notoriously many men earn-

ing 25s. ($6.25) a week have better homes than men with 50s. ($12.50). The worst homes in villages and towns are in the coal districts belonging to men earning 8s. to 12s. ($2.00 to $3.00) per shift; or in steel towns like Middlesborough where wages may run to £3 7s. ($16.75) per week, and all the pawn shops are crowded on Monday mornings.

(7) Local habit is of importance. In Birmingham all women drink, as do many in Nottingham and Leicester. In Lancashire much more drinking is done by women than in Yorkshire. On the whole there seems little reason to connect this habit with the particular kind of industry or the conditions of work or of housing, but, of course, it has considerable effect on social conditions.

(8) We are improving. The town-planning, Garden City idea, is spreading and many new districts are being laid out quite nicely.

Bow Bells.

Manchester, May 30, 1914.

[There does not appear to be any sharp conflict between "Bow Bells" letter and our April and May comments on free trade, protection and congestion of population. We do not claim that free trade is the sole cause of this evil of congestion. Our contention is that protective tariffs tend to restrict it. Our observations referred to commerce as well as industry. Lancashire was selected to illustrate the general tendency in all countries.—Ed.]

PROTECTION AND THE ENGLISH COTTON TRADE

Editor Textile World Record:

I notice that the housing conditions in America under a tariff, and in Manchester under free trade are being discussed in the Textile World Record. I am sending herewith a government report on the housing conditions in the city of Dublin, which certainly beat Manchester. This, too, is under free trade. It will want some beating in the United States. Talk about emigration. Why Great Britain can show the greatest emigration returns than any other country in the world. Do you wonder why, and do you know that there is not a single foreign country which has adopted a tariff policy that has ever gone back to free trade? Many of your readers may have read in newspapers that the preeminence of our Lancashire cotton trade is entirely due to free trade. This is not so, because Great Britain under a system of tariffs in 1846 consumed more cotton, she exported more cotton goods, and she had 7,000,000 more spindles than all the countries in the world put together. We simply grew and fostered our cotton industry under a high tariff system. What do you think about this under free trade? These statistics are from our Trade and Navigation Returns, published by the British Board of Trade in the years 1890 and 1913.

Total yardage of Cotton Piece Goods (of all kinds) Exported from the United Kingdom to:

	1890	1913	Decrease
Belgium .... yds.	50,001,500	31,158,000	18,843,000
France	30,666,300	12,762,100	17,904,200
Portugal	54,575,300	29,446,900	25,028,400
Italy	55,940,200	10,246,700	45,693,500
Greece	34,009,500	31,896,600	2,112,900
Philippine Islands	46,217,300	16,899,200	29,318,100
Japan	63,309,400	50,199,900	13,109,500
United States ...	58,811,800	44,415,000	14,396,800
Venezuela	40,924,300	34,780,700	6,143,600
Brazil	212,640,500	96,537,500	116,103,000
Peru	34,431,500	28,789,100	5,642,400
Chile	61,851,600	61,740,100	111,500
Mexico	39,788,700	22,883,900	16,904,800
Sts. Settlements	151,204,000	131,791,500	19,412,500

Compared with the year 1890 Great Britain's exports of cotton piece goods of all kinds (i. e.. grey, dyed, bleached, printed, including colored goods) to the above mentioned markets declined in 1913 to the extent of 338,824,700 yards. In addition to this the total exports of all kinds of cotton yarn from the United Kingdom in 1890 amounted to 258,290,800 lbs., but in 1913 they fell to 210,175,500 lbs., a decrease of 48,115,300 lbs. We are certainly not maintaining our former position in the markets of the world and if it were not for our colonies and India, Lancashire would be in a very bad way indeed.

H. Scrivner,

Manchester, Eng.

THE NATIONAL WOOL CONFERENCE

In response to an invitation by the Secretary of Agriculture a number of wool growers, manufacturers and dealers met in Washington on June 2 for the purpose of discussing methods of developing the American wool clip. The following subjects had been suggested for discussion:

Manufacturing Value of American Wool.
Present Methods of Handling American Wools on the Farm and Ranch.
Control of Predatory Animals in Range States.
Foreign Methods of Handling Wool.
Methods of Effecting Improvement in the Handling of American Wool.
The Dog Problem in Farm States.
Means of Increasing the Number of Farm Sheep.
Improvement in Range Breeding Methods.
Statistics on Sheep and Wool.

The conference was called to order by G. M. Rommel, Chief of the Division of Animal Husbandry, who introduced Assistant Secretary of Agriculture, B. T. Galloway. Dr. Galloway welcomed those present to the conference and assured them that the Department was ready to cooperate in any way possible to improve the American wool clip. Chairman Rommel then invited William Price, Boston, to open the discussion.

Mr. Price stated that he represented the National Association of Wool Manufacturers and the American Association of Woolen and Worsted Manufacturers. He began by a reference to the string used for tying wool, stating that the only objection to paper string was that the shearers failed to knot it, which is the same as not tying it at all. The tags, bucks, black wool and mohair, Mr. Price said, should be packed separately. It is questionable whether skirting is feasible, particularly in the territories, and if the tags are kept out of the wool there would not be the same reasons for skirting here that there are in Australia and South America, where there is liable to be burs on the wool. Marking with paint is a distinct disadvantage. The speaker stated that it is not to be expected that as good wool can be raised in this country as in Australia. The climate, enclosed stations, feed and character of the soil in Australia account for the superiority. Grading wool at the ranches would not be a success because the grades vary on the market and the wools raised in the territories vary materially. Mr. Price favored packing wool in bags rather than in hard pressed bales. He also thought it would not be feasible to sell wool through a local organization owing to the wide variation in grade.

W. T. Ritch, of Australia, addressed the conference on Australian methods of grading and packing wool. He went into the subject in great detail, his remarks being illustrated by charts. Mr. Ritch was in favor of classing wool at the ranch and quoted with approval the statement by an Australian expert "that there is fully three to four cents per pound difference in a skirted lot of wool compared with one put on the market as it comes off the sheep, making a difference of $10 a bale." Mr. Ritch was then subjected to a volley of questions from Mr. Price, Jacob F. Brown, of Boston, and others.

Among the other speakers were Dr. N. A. Cobb, of the Bureau of Plant Industry; Dr. S. W. McClure, secretary of the National Wool Growers' Association; John Fisler, of Philadelphia; Congressman Mondell, of Wyoming; Magnus Brown, of Minnesota; J. P. Cosgriff, Salt Lake City; Miss Julia M. Wade, representing the American Shropshire Association, who asked for an appropriation by the government to be used in the destruction of predatory animals; Prof. W. C. Coffey, Joseph R. Grundy, John P. Wood, and Robert B. Thompson. The chairman appointed a committee consisting of Dr. McClure, Prof. Coffey, Magnus Brown, Robert B. Thompson and J. P. Cosgriff, to prepare a statement covering the principal points brought out during the conference. This statement is as follows:

The sheep industry of the United States, according to the last census, was valued at approximately $230,000,000. The sheep industry obtains to some extent in every county of the Union. It is of vital importance to all the people of the United States, for not only must our nation depend upon the sheep for a large part of its meat supply but the best part of its clothing must always come from home-raised sheep. It is generally admitted that our supply of sheep is rapidly decreasing and the indications are that a still further decrease seems probable. Under these conditions you have called

this Conference to consider the economic problems that are unfavorably affecting this great industry. For this recognition on your part, the flockmasters of the country are deeply grateful, and beg to assure you of their hearty cooperation in carrying out every reform that would seem to offer a solution of these problems. Among the subjects considered by this Conference, and the conclusions reached by the delegates, are the following:

A careful estimate indicates that approximately $15,000,000 worth of poultry and live stock are annually destroyed in this country by the depredation of predatory wild animals. In the western states, on which most of this burden falls, the great percentage of these predatory animals are bred and raised on land properly withdrawn from settlement by the Federal Government. This condition makes it impossible for the State or individual to successfully eradicate these pests. Under such conditions those interested in our animal husbandry feel that the nation should assume its just share of this burden through a system of national bounties.

In the farming States, thousands of sheep are annually destroyed by dogs, and this menace keeps many farmers from taking up sheep husbandry, thus reducing the nation's supply of meat and wool. There is a pressing need for better legislation on this subject in many of the States, and we respectfully suggest that the Department of Agriculture could materially assist in securing such legislation by giving this movement its moral support in every way possible.

At the present time we have in the United States no generally accepted standards for the determination of the various grades of wool. This lack of standardization makes it impossible for the wool grower to know the grade of wool he is producing or the value of it in the market. We feel that if our wool was standardized into grades intelligible to the grower, that it would encourage him to produce a better quality of wool and would do much to place the entire wool industry on a higher and a more satisfactory plane. We appreciate the most useful work done by the Department of Agriculture in the standardization of cotton, and we petition that at the earliest possible moment your Department will take up the matter of standardizing wool. We appreciate that considerable time must elapse before a perfect standard of grades can be generally adopted, but we believe that in a relatively short time temporary standards can be established that will prove acceptable to the wool grower from an educative standpoint and useful to the entire wool trade. We therefore hope that before our next clip is marketed the grower may have before him a set of standards generally acceptable to the wool interests of this country.

There seems to be a general impression that in quality and character the wool of the United States is declining, as it certainly is in quantity. Probably several factors contributed to this result, but undoubtedly an important cause is that in the past few of our agricultural colleges of the Department of Agriculture have given wool growing or sheep breeding the consideration that the importance of the industry merited or the encouragement that foreign governments have extended to their sheep breeders. Wool growing is a science that requires not only the sound judgment of practical breeders, but the technical knowledge possessed by the trained expert. We therefore appreciate that under present conditions there is immediate need for the establishment of Government sheep-breeding farms, one of which shall be located in the intermountain States and another in the central part of the United States, where, under supervision of experts, experiments may be conducted to determine what type of sheep produces the most desirable quality of wool and is best adapted to the conditions existing in the various parts of the territory concerned. Under the direction of these experts, a survey of the country could be made to ascertain the character of sheep husbandry best suited to each locality. In connection with this Government breeding farm, we would urge the maintenance of a wool college where a short course in wool, wool growing and sheep breeding would be available to those connected with our sheep industry. Such institutions as these would stimulate interest in wool growing and would be reflected in an increased production of wool and sheep and a material increase in the character and usefulness of American-grown wool. The urgent need of such institutions leads us to ask that every effort be made to establish them in the near future.

In order that those interested in this Conference may derive the fullest benefits therefrom, we suggest that a copy of the proceedings of this meeting be printed and distributed to the delegates in attendance.

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THE SOUTHERN TEXTILE ASSOCIATION

The annual meeting of the Southern Textile Association was held at the Isle of Palms, S. C., on June 12 and 13, a record number being in attendance and unusual interest being shown in the proceedings. An address of welcome was delivered by the Mayor of Charleston and the response made by I. B. Covington, superintendent of the Albion and Mount Holly Cotton Mills, Mount Holly, N. C. President T. B. Wallace then delivered his annual address which was in part as follows:

It affords me a great deal of pleasure to again meet with you in another meeting of our Association, and that pleasure has been enhanced by reason of the wise selection of the Isle of Palms as the place to hold our summer annual convention. The natural advantages are all that could be desired, this together with other pleasures that our Committee of Arrangements have on the program will make our stay here the most pleasant, and one we will all enjoy.

There is a question constantly springing up in our legislative halls each year, one that should receive the fair consideration of every mill man who holds a position of any authority, which I believe touches every man here that is actively engaged in manufacturing cotton goods, that is,

the question of child labor in cotton mills. There is no doubt in my mind that the entire agitation regarding child labor is based on imagination, or from second to fourth hand information, and not on actual observation and contact with the question they are trying to defend.

Some time since, your President was called before the senate committee in Columbia, at which meeting certain representatives of the child labor bill got up and in making their plea made statements something like this: "God forbid that a child of mine shall ever have its limbs deformed, its health impaired, and its mental capacity dwarfed by working twelve hours a day for a mere pittance." He also made the statement that the mill owners wanted these children to work because they could get their services for a pittance. Gentlemen, this man may have been sincere in his belief and honest in his convictions, but the poor fellow was just misinformed and never took the trouble to investigate. Every one of you would, I am sure, prefer not to work children, and a lot of you will not unless it is forced upon you by the child's parents, which in most cases when children are worked you have to employ the child to secure the family, as that family is more or less dependent upon that child for support, or where some widowed mother who has lost all means of support but her child to work, it is either give the child employment or turn them both out to be subjects of charity with no state appropriation for this cause.

The mills are all willing and encourage the children attending school, but there are around every cotton mill quite a few families that do not exercise as good control over their children as they should, and for this reason a good many do not work, neither do they attend school, but loaf around the streets and stores and form bad habits and in most cases are the ones put up as examples when the child labor question comes up. I consider it a question that the people who are to be affected by such a measure should be allowed to decide, and not the people who are in position to allow their children to sleep until 8 a. m. and ride to and from school and who have no conception of real life in our mill villages.

Another thing you are all no doubt familiar with, that is what has already been done to bring the big machinery show of the Textile Exhibitors' Association of Boston to the South, and we shall probably hear a further report on this subject from our standing committee when the proper time in the program arrives for its report to be read. We all want this exhibit to come South and I believe that an opportunity has arisen whereby every superintendent belonging to this Association can render assistance toward that end.

The superintendents present have now no doubt received a letter as I have during the past few days enclosing a post card asking for each mill to fill out that post card agreeing to arrange for its superintendent and as many of its overseers as possible to attend this exhibition for at least one day during its progress. The assurance of our support, which we will furnish by signing these cards, will go a long way toward inducing the Textile Exhibitors' Association to bring its show to the South. I hope those of you present who have not taken action on this matter already will do so immediately on your return home.

R. M. Odell and W. A. Graham Clark, commercial agents of the Department of Commerce, Washington, D. C., attended the meeting and presented papers on foreign trade, Mr. Odell speaking on "Manufacturing Goods for the African Trade," while Mr. Clark spoke on "Cotton Manufacturing Methods in Japan."

After a number of amendments had been made to the by-laws the following resolutions were reported and unanimously adopted:

"Resolved—That the thanks of the Southern Textile Association be extended to Mr. Sottile, and the management of the Isle of Palms Hotel for the manner in which they have handled the convention, and for their uniform courtesy.

"Resolved—That the Southern Textile Association express its appreciation to the textile press of the South for the high stand it has taken upon all questions relating to the upbuilding and welfare of the Southern textile industry.

"Resolved further, That the Southern Textile Association express its appreciation to the textile press of the South for the support and encouragement it has always given to the Association."

Whereas the members of the Southern Textile Association have heard with deep interest the addresses of Commercial Agents Ralph M. Odell and W. A. Graham Clark, and have examined the large collection of samples of cotton goods on exhibition, and whereas this convention appreciates the great value of the work which the department of commerce is doing to assist American cotton manufacturers in extending their export trade by supplying valuable information and interesting samples for study,—now therefore, be it resolved:

First—That this convention, composed of men who are actively engaged in cotton manufacturing in the South, heartily endorses the work of Messrs. Clark and Odell, and urges that this work be continued.

Second—That the thanks of this association be extended to Honorable William C. Redfield, secretary of commerce, for permitting Messrs. Clark and Odell to attend and address the convention, and for the practical demonstration of the requirements of the foreign markets that has been afforded through the exhibition of samples.

Third—That a copy of these resolutions be spread upon the minutes of this association, and a copy forwarded to the secretary of commerce.

Resolved—That the Southern Textile Association, realizing the great benefit that would come from such an exhibit, invites and strongly urges the National Exhibitors' Association to hold an exhibit in the South during 1915, and that the National Exhibitors' Association be invited to send Secretary C. I. Campbell or such other representative as they may select, to choose a suitable place for the holding of such an exhibit.

The election of officers resulted as follows:

President—E. E. Bowen, Greer, S. C.
Vice President—W. M. Sherard, Williamston, S. C.
Secretary—A. B. Carter, Athens, Ga. (re-elected.)
Treasurer—Marshall Dilling, Gastonia, N. C. (re-elected.)
Chairman Board of Governors—Frank E. Heymer, Alexander City, Ala.

Following is an abstract of the papers read at the meeting:

COTTON COMBING

By P. A. GWALTNEY, Fayetteville, N. C.

To produce very fine yarns or a very high class of yarn, we must use a machine known to the trade as a "Comber." This machine combs out of the cotton the short fibers, neps, and foreign matter that cannot be gotten out by the cards and pickers.

Before the cotton can be fed to the combers, it must be prepared into a lap. As a general rule, this necessitates the use of two preparatory machines, known as the "Silver" and "Ribbon Lap Machines." Sixteen or twenty card slivers are fed into the sliver machine, the principal part of which consists of three or four drawing rollers, two pairs of calendar rollers, and two lap rolls. The slivers are condensed into one solid sheet or lap.

Four to six of these laps are placed on two corrugated wooden rollers and fed through four pairs of drawing rolls, which have a tendency to draw the fibers into a more parallel condition. These four or six sheets of cotton are passed over a guide plate through a pair of calendar rollers and condensed into a lap which is in a suitable condition to be presented to the comber, and is fed to the feed rollers over a guide plate in an intermittent motion at about 3/16 to 5/16 inches per nip. While the feed rollers are passing the cotton forward, the nippers are open, and the detaching rollers with the segment, are taking the last combed portion of the cotton forward.

The nippers then close and hold the cotton in the path of the needles of the half lap, which combs out the short fibers and impurities. While this operation is taking place, the feed rollers and detaching rollers are not revolving. The waste is taken out by the cylinder needles and carried to the back by the cylinder brush, doffer and comb, or by an aspirator. The use of the aspirator is a great improvement over the old system of removing the waste, as the backs of the combs are kept clean by this method, which requires much less stoppage for cleaning the backs than the old way, therefore giving a large production, and enabling the comber tender to look after more machines.

After the nippers open, the segment comes under the combined fibers and carries them forward, with the assistance of the leather detaching roller, which comes in contact with the segment for this purpose. The newly combed fibers are carried forward until they meet the return ends of the last previous combed fibers.

The detaching and attaching mechanism is quite difficult to understand on account of the different operations of the detaching rollers, and more especially the top rollers. They have a rotary motion carried on simultaneously with a bodily motion through space. They have an intermittent and reciprocating motion, besides the rotary motion, one way being greater than the opposite motion. In other words, the forward motion, we will say, is twice as great as the backward motion.

During the time of combing the roller is lifted out of the way of the needles and lowered again to meet the segment. This is known as the "bodily motion through space." The rotary motion is caused by frictional contact with the long steel roller, and is first made in such a direction as to cause the rollers to turn backward. As soon as the backward motion is completed, the forward motion commences.

The function of the top comb is to comb out the tail ends of the fibers delivered, and extract the short fibers and impurities from the same. The angle and setting of this comb plays a big part in the amount of waste taken out.

In conclusion, allow me to say that great care should be used in the making of good even laps, with fibers as parallel as possible. Short piecings up at the back of the ribbon machine will save a lot of broken needles in the cylinder and bad top combs, which is very detrimental to good work, as well as the cost of having them reneedled.

AIMS AND OBJECTS OF THE SOUTHERN TEXTILE ASSOCIATION

By J. M. DAVIS, Newberry, S. C.

Unless good fellowship permeates this entire organization it will never come into the full realization of its highest usefulness. There can be no littleness, no selfishness. A contagious enthusiasm for the other's good must be manifest in the heart and in the act. The keynote of life's arch is helpfulness. This is a secret easy for a noble heart to learn and when possessed makes the life fuller and richer; for it is written in God's law that he who would be greatest must render the most service to the race. It is easy given and costs the giver nothing and yet the hearty handshake of a fellow craftsman will carry encouragement and lighten the load and put renewed vigor into the heart and mind of those less fortunate.

Economy is so closely related to efficiency that it deserves special notice. Every manufacturer realizes that he must study to save. He must be a master here if anywhere. He must have thorough knowledge of everything that tends toward economical methods. The business world today is demanding that wastes be turned into profitable results. Efficiency produces economy and extravagance is a commercial crime, and he who is responsible for this commercial crime is a business outlaw.

Let us look at this proposition from another standpoint. There are always two classes of men at work, the construction gang and the wrecking crew. It is useless to ask to which of these two classes the successful man belongs. We know that only those who are found on the side of efficient and constructive development succeed. Today we must use the efficiency of yesterday to reap the reward of tomorrow.

There is another point growing out of this discussion. It makes little difference whether we name it elimination or selection, it means the

same thing. Men best suited to produce required results must be selected. Certainly for the most responsible positions men with large mental equipment and executive force will be chosen.

My plea, then, is that this organization should serve to increase our work to our industry, intensify our enthusiasm and earnestness of purpose. If it does this, and it is doing it, it will grow more and more useful to all of us as the years come and go.

THE ANNUAL MEETING OF THE SOUTHERN NEW ENGLAND TEXTILE CLUB

Through the courtesy of Herbert W. Rice, president of the United States Gutta Percha Paint Co., of Providence, R. I., the annual meeting of the Southern New England Textile Club was held at the Pomham Club House, Providence River, R. I., on Saturday, June 13th, and was attended by over 200 members and guests of that active and prosperous organization.

The business session, which was presided over by Henry C. Dexter, was handled with great dexterity and a general feeling of unanimity prevailed throughout.

This club, ever since its organization, has grown continuously not only in popularity, but in numbers, until the large number of names on the waiting list compelled the management to consider favorably the question of raising the limit. This resolution, outside of the election of the regular officers for the coming year, was the entire business of the meeting. The limit of membership is now 400, to consist of 250 interested directly in textile manufacture and 150 of interests allied thereto. Judging by the many expressions of approval of the adoption of this resolution, it is safe to predict that this limit will be reached very shortly and an opportunity given to create an additional waiting list.

The nominating committee presented the following list of officers, who were unanimously elected for the ensuing year: President, Henry C. Dexter; vice-president, Alexander Makepeace; secretary and treasurer, Frederick L. Chase; executive committee for one year, George C. Hinckley and Frederick W. Howe; for two years, Robert Stewart, William A. Robinson and E. Russell Richardson; for three years, Howard J. Greene, George P. Grant, Jr., and John L. Burton. The club adopted the term service of membership so that certain members of the directors would retire each year.

A most tempting luncheon and substantial dinner were the particular features of the entertainment and presented a very substantial reason for the popularity of this club house as a meeting place.

The announcement was made that the July and August meetings were to be omitted and the next regular meeting of the club would be held at the same place, the Pomham Club House, Saturday, September 19th.

PRINCIPLES OF MODERN MILL MANAGEMENT

BY EUGENE SZEPESI

In the last twenty years more progress has been made in the standardization of mill management than during all the previous development of our industrial system. We have come to realize that the human factor is not so inconsistent as it is commonly supposed to be, and that successful manufacturing is not purely a mechanical problem. It matters little what the business may be, whether machine shop, woolen mill, canning factory or knitting mill, the problem is the same, manufacturing the most marketable goods under the best conditions and at lowest cost. Mechanically, we have no difficulty in carrying out this principle. We have never lacked new inventions which spell progress; on the contrary, every inventor's effort has been expended on the mechanical improvements of the labor saving principle, which in itself is most essential in reducing manufacturing cost. Nevertheless, human attendance and labor cannot be eliminated entirely, and any effort to limit inefficiencies and waste, caused by the imperfection of human attendance, is well spent. This is a principle of scientific management. Its aim is prevention; and the instrument is standardization.

Every business activity brings up the question, What is the best manner in which to perform the work? and there is a best

way of performing every human activity. Prejudice, custom, hasty decision, will never establish the best and right way, but a disregard of all these and a careful analytical examination of every operation and mill activity will result in finding the ultimate best way. The next essential factor is time. How long will it take to perform a certain task in the most desirable manner. It is the carefully made time study which establishes this factor, and here we have the base of scientific management.

A modern management is no longer satisfied with the knowledge that production is going on and that the cost of manufacturing amounts to so many dollars for the whole output. The actual cost of the different articles must be known, item for item, factor for factor. Modern cost accounting supplies this data, without which the success of a manufacturing plant is just as doubtful as if they had obsolete machinery in use.

Now, we go even beyond cost accounting. We are no longer satisfied to know how much it costs to manufacture, but we want to know how much it should cost. The difference is the preventable waste. This waste may be material, labor, supplies, possibly a combination of all, but preventable waste and its elimination or reduction is just as important a duty of the management as the manufacturing end, and on this rests the present and future success of the mill.

The textile industry in its various branches has peculiarities common to all. It requires mass production for success. Monopoly is impossible. Any article with a tendency of holding the market, invites competition, which naturally brings down the profit to the lowest level that capital can stand. It is a true case of "the survival of the fittest." Pioneers of certain articles in woolen, cotton, silk or knitting industry, who have prospered during the first period of their existence, have gone down in the fight of competition after a universal market for the article has been opened. We see this repeated every year. What is the cause? The market for raw material is open to all—the same machinery is available and capital and credit is shy only when the management is incompetent or unsuccessful. So it is the management which is responsible, and the cause is the difference between "what it costs to manufacture" and "what it should cost to manufacture." How often useless sacrifices are made. Capital is replenished; the mill refurnished with the best machinery for the purpose, but the principle of management remains unchanged; naturally all is lost.

Preventable waste is the axis around which all effort should revolve. The question is, What is the cause of the difference? There are never big causes, but trifles. Difficulties which are big enough to trip us, are corrected, and seldom repeated. It is the trifles, or their serious consequences, for which every manufacturer should be on the watch. Small leakages caused through old customs, negligence or carelessness, need eternal vigilance. A garnetting machine in a woolen mill was installed ten years ago to open hard ends, which were to be reworked again instead of being sold to the dealer. Later the character of the products was changed, necessitating a coarser and much softer yarn, which could have been fed much faster to the machine. During the ten years the business doubled, and the machine was not able to keep up with it. If too much waste accumulated, the man in charge put the superfluous waste in with the other salable waste, in order to keep up the balance of the machine, since there was not enough space in the room for another garnett. What else could he do? Finally this mill decided to standardize its operations and the garnett was taken up in its turn. When it was suggested to the man to feed the waste heavier, he vehemently protested that it couldn't be done; it had never ran any faster; besides, the machine was old, the clothing worn out and it worked poorly. This was true, the material run through was full of nails, chips and other hard substances, and the machine had never been properly repaired. Actual production showed that it produced between 175 and 200 pounds a day. The rolls were sent away to be put into good condition, the feeder speeded up and the waste gradually fed heavier, until it reached the maximum feed. In the end, the production was raised to 400 and 450 pounds

a day. A search among the records brought the fact to light that for the last five years the average weekly reclaimable waste was about 2,000 pounds, or for five years the machine opened only

500,000 lbs. total waste
325,000 lbs. opened by machine

175,000 lbs. difference.

The opened waste was worth to the mill 25 cents per pound. The selling price of the unopened waste averaged 12 cents per pound, and the opening should have cost less than 1 cent per pound, or a total of 13 cents. The mill lost during five years, on account of disregarding this "trifle" over $20,000. Watch the trifles and the big things will take care of themselves.

The elimination of small leaks is the problem of modern manufacturers and it is a very serious one. The control must not be burdensome and intricate. It should not become red tape or contain offensive features to the help. Neither should it be too expensive, otherwise the profits derived may be eaten up by the administration. The ultimate saving possible should always be the index for the expenditures involved.

(To be continued)

TRADE MARKS AND TRADE MARKING

Springfield, Vt., June 24, 1914.

Editor Textile World Record:

Referring to the article entitled Trade Marks and Trade Marking by Frank H. Marston on page 151 of your June issue, we must take exception to the statement in the following paragraph:

> The third method (of trade marking) is by paint or ink, a cheap method, but offering no field for attractive designs, often proving somewhat of a disfigurement, besides requiring a certain time to dry in order to prevent blur or offset.

We admit frankly that the Kaumagraph stamp makes the most beautiful trade mark of any process known in the art today, but on cheaper goods which must be handled at very high speeds manufacturers could not afford to use the Kaumagraph process.

Ink trade marking has its place. We must disagree emphatically with Mr. Marston that an ink trade mark cannot be made in attractive designs. Of course the size is limited but a neat design on the selvage is never a disfigurement. We are printing with ink and, rolling up the goods immediately at a speed of 150 to 200 yards per minute. This does not indicate that ink printing requires time to dry in order to prevent printing off on the goods that are wound over it. Furthermore if the nature of the goods is such that the ink is not immediately absorbed, we furnish a blotting attachment so that we can prevent any blur on any kind of goods even at high speeds.

Ink trade marking has one advantage over other processes, it can be done at the same time and in connection with yard numbering, that is, the printing of the yards, halves and quarters at the correct measured distances along the selvage of the goods. Both yard numbering and trade marking are growing steadily in favor. After a great deal of tedious and costly experimental work, these machines have been developed to such a state that they do rapid, accurate and attractive work. The manufacturers of silks are just beginning to appreciate the advantages of these processes.

There is also the Baird trade marking process now in use on many fine goods, especially silk and high grade cottons. This machine is limited to narrow designs on the selvages but does very beautiful and delicate work. The designs are made by dots stenciled on the goods through perforations in a thin stencil belt.

All honor to the Kaumagraph Company for their efficient work in the production of a practical commercial stamp and while admitting the beauty of their designs and recognizing that there is nothing finer to be had, we still must claim a field for ink printing where the Kaumagraph has no place.

Thanking you for the courtesy of publishing this letter, we beg to remain.

Parks & Woolson Machine Co.,
W. W. Brown, Mgr.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

CAMS FOR BUILDING WORSTED TUBES

BY J. DUMVILLE

Since the introduction of the Scaife Lifter Motion, worsted spinners have been served with a simple and easy adjustable mechanism for the building of either bobbins, spools or tubes. Its simplicity, and absence of small parts have made it popular. So far as throstle spinning frames are concerned, it is in general use and has been fitted to hundreds of twist frames where small bobbins are used. One of its advantages is the ease with which the parts can be altered to suit varying counts of yarn, and to make either spools, tubes or bobbins.

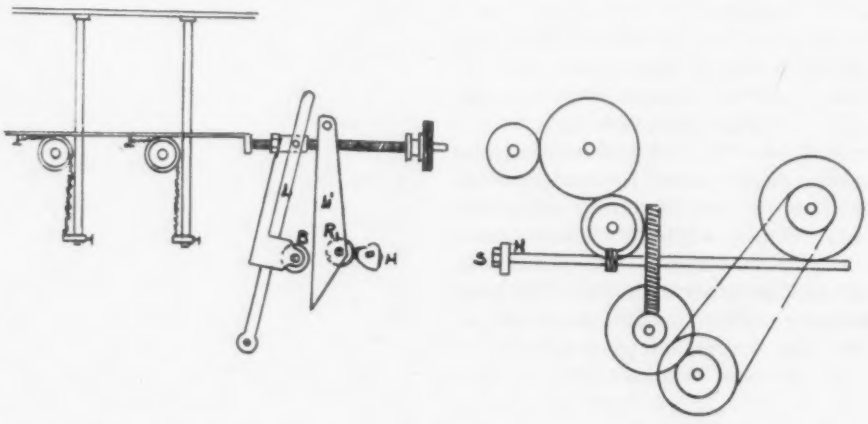


FIG. I

In this mechanism 2 levers, L and L', Fig. 1, are employed, these having their fulcrums at opposite ends. On the long lever, L, is a movable bowl, which is capable of adjustment, the position of this bowl, and the point at which these two levers bear on each other, exercising some influence on the length of traverse communicated to the lifter by the heart, H. The short lever, L', fulcrumed at the top, swings backwards and forwards by reason of a small iron roller, R, mounted on a loose shaft at its lower end, working in contact with the heart, which revolves with shaft, S, upon which it is firmly fixed. The side of the short lever, L', opposite to that in contact with the heart, is a smooth slide, upon which the movable bowl, B, of long lever, L, may work freely.

The position of this movable bowl is never changed when building double-headed bobbins or tubes,when once the desired length of traverse has been obtained. When spools are required, the moving of the bowl on the slide of the short lever, L', is requisite to obtain the short but constant increasing pick or traverse necessary for building up the bottom of the spool. An examination of the position of these two levers shows that the traverse of the long lever, L, at the point where the traverse is communicated to the lifter, depends upon the position of the bowl, B, and upon the pick of the heart on shaft, S. Where alterations in traverse are required say from 3 inches to 1 inch, the heart is changed, but when the change required is small, say from 1 to 1 1/4 inches, or from 3 1/2 to 3, etc., these can be obtained by

moving the position of bowl, B. It is evident that, although bowl, B, is on lever, L, it is loose, and can be moved and fixed at will. When spools are being made it is wound up at the commencement of each doffing by turning the wheel, W, which by gearing with the rack attached to the collar upon which the movable bowl is fixed, moves the bowl to the top of the slide of the short lever, L'. This reduces the 1 or 1 1/4-inch pick to one of about 3/8 inch long. When the frame is started the screw shaft upon

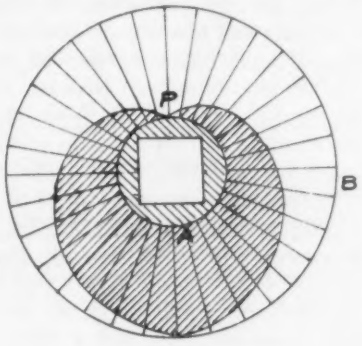


FIG. 2

which the wheel, W, is fixed moves slowly, the shaft being driven by the series of wheels known as the motion. These are capable of adjustment, to suit varying requirements of counts and twist. Thus the bowl is gradually lowered at the beginning of the bobbin, each lowering extending the traverse a little, until when the bobbin head is filled, the rack is at its lowest limit and remains stationary during the rest of the doffing. When tubes are required this lowering motion is not needed, and is therefore kept out of use.

The most important part of the lifter is undoubtably the heart shaped cam, which converts the circular motion of shaft to the horizontal motion of lifter rail. Upon its proper construction depends uniformity of speed of the lifter and the consequent perfect shape of the bobbin. The principle upon which the heart is constructed is fairly well known, but is again shown in Fig. 2. The pick of the heart is first decided upon and this is the difference in radii between the two circles, A and B, Fig. 2. If circle, A, were 1 inch diameter, and circle, B, 3 inches diameter, the pick of the tappet or cam constructed on them would be 1 inch, or $(3 - 1) \div 2$. The pick required in building bobbins is one of uniform length and speed, which is obtained by building the cam as shown in Fig. 2. The circles are first drawn and then radial lines of an equal distance apart are drawn between the circumferences of each. The heart shape is built upon these lines, by first dividing into the difference between the two radii, the number of lines in one semi-circle. The result so obtained is the increase in the distance from the center to the perimeter of the heart as each radial line is reached. Thus beginning at point, P, the first mark is made on the circle of small diameter, and as each line is reached the distance from the center is increased 1/16 inch, until finally the outer circle is reached as shown. This shape is found most serviceable on spinning frames for bobbins, spools and tubes.

When spinning mohair, or long luster wool on tubes, there is difficulty in getting the yarn straight at the nose of the tube, when the tube is almost full. This produces what are known as "sluffy" tubes, which are

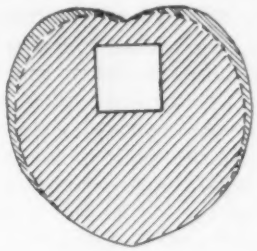


FIG. 3

very difficult to weave off, until the uneven part has been pulled off. From what has been shown regarding the construction of the heart, it will be understood that the speed of lifter is constant; that whether rising or falling its speed is the same, and does not vary when the tubes are empty to when tubes are full. This is the ideal traverse when building double-headed bobbins, where the lifter places side by side layers of yarn, making the bobbin one diameter from top to bottom. In the building of tubes the diameter of the empty tube is constant, but

directly it begins filling we get variable diameters, so that just before it is full the greatest diameter will be 1 inch and the least 1/2 inch. With a constant speed of lifter, the layers are not equidistant apart. When running on to the 1/2-inch diameter the layers are closer together than when running on to the 1-inch diameter, and it is here that the improvement must be made to overcome the tendency to make bad shaped tubes. The tube is made "sluffy" by reason of the numerous layers close together at the nose of the tube, and of the slippery nature of the materials, which accounts for the slipping out of place of some of the layers, and increasing the faultiness of the tube at its nose. To overcome these defects several suggestions may be made and two of them may be dealt with first:

(1) To increase the drag placed upon the end, by increasing the size of washers used. Where this can be done, it certainly ought to be, apart from the shape of tube, because it is important that tubes should be tightly wound to preserve their shape during transit. This may be found efficacious for some sorts, but it cannot be forgotten that there is a limit to the amount of drag applied, a limit soon reached when spinning to the full extent of quality. So when this fails, it is necessary to turn to some other remedy.

(2) To increase the speed of the lifter plate, and slow down the motion, or decrease lifter speed, and speed up the motion. This is done with the idea of finding a speed which will allow the layers of one rise or fall of lifter to lie between the layers of the previous rise or fall. No useful purpose is served by this suggestion, though many arguments have been made in favor of both speeding up and slowing down, and many trials have been made, yet nothing definite has been proved.

It is evident that the best practice is to follow out the reasonings of theory, and make a heart which will to some extent allow for the differences in tube diameters when the tube is nearly full. When the small diameter at the top of the tube is being wrapped the depression in the heart is in contact with the bowl on the short lever, L'. Fig. 1. To speed the lifter at this point a different shaped heart must be used. This new heart must increase the speed of the lifter when the nose of the tube is being wrapped. The distances measured off on the radial lines must be increased when at the heart depression, and correspondingly decreased when at the point of the heart. The alteration must be slight, or a different shaped tube will be built. To show the required difference an ordinary shaped heart and one altered to prevent "sluffy" tubes are shown together on Fig. 3, the dotted line heart being the old one which is defective for fine mohair and luster wool counts. The new shaped heart has been proved beyond doubt to be the remedy. Because of the increasing tube trade it has been thought advisable to make the information public. It is one of those problems which confront the superintendent and the section hand, only at rare intervals, and is never settled satisfactorily, because of its spasmodic appearance. However, it is hoped that this explanation and remedy will be of use to those who have experienced difficulty before.

WANTED, A NAME FOR ARTIFICIAL SILK

Campello, Mass.

Editor Textile World Record:

I have read the letters in the June issue regarding the item "Wanted, A Name for Artificial Silk," and if it is not too late I would like to submit the following as suggestions for a name:

First, "Nesilk," which is derived from near silk, and which would convey the idea that there was a silk in connection and yet give the impression that it was not silk.

Second, "Nasilk," the word silk again conveying the idea of silk, while the "na" which is often used for "no" would convey the idea that while silky in appearance it was not silk. It seems to me that artificial silk, if given a name to distinguish it from silk, should in some way hold the name for the reason of its imitation.

Third. "Arti," taken from the word "artificial," used thus, "Artisilk," would convey the idea that it was not pure silk.

Yours truly,

Ernest Hall.

INSTALLING A COST SYSTEM

BY WINWICK

When men are so intensely interested in the high cost of living, some of the new methods of accounting are amusing and supply evidence to how great an extent we can be penny wise and pound foolish. Perhaps this plain account of the experience of the writer may be of interest and profit, being that of a superintendent in a large western cloth mill in installing a new cost system. We entered upon the task expecting to effect a considerable saving in the amount of time consumed in the preparation of our cost sheets and pay-roll with the new and simplified methods. We felt that probably the system which had been in use with us for many years might be obsolete and that very likely we were making unnecessary repetitions. We believed that our overseers had reduced their bookkeeping to a point where they were saving all the time they could in their departrents, yet we hoped to save by rearranging our work as a whole. We therefore secured the best efficiency engineers we could find and told them that we would cooperate with them to the best of our ability.

We began our cost accounts Jan. 1, 1911. by charging each department, directly from the inventory, with the amount of stock which was in the respective departments on that day. This seemed to be the only rational way to start. We provided each overseer with blocks of requisition blanks. As they had occasion to send for stock they had only to fill in the blanks and leave them with the stock-keeper as receipts for material taken. These slips were to be returned to the cost clerk daily. We were also to use pale blue requisition slips in every case where it was necessary to transfer stock between departments. This at first appealed to us as being the only logical way to deal with the situation and we were well satisfied until we discovered that our men could make mistakes. We appealed to our systematizers and they said:

"Just as soon as the men are educated to the system the mistakes will be reduced to a negligible quantity."

Having had a few years' experience with the practical side of mill conditions, we had doubts as to the wisdom of following a system that made us so dependent on the men who are usually employed to handle raw stock. When some particular grade of stock needed replenishing and a change a little out of the ordinary was required, the weighers would get the stock for the balance correctly, but, not being highly educated, they would frequently forget to report the weights in order that the overseers might correct their requisition papers. We feared that in a short time we would not know anything definite about the cost of stock.

We found a simple way out of our difficulty. Woolen stock was charged to the picking department; cotton, to the cotton opening department, and the warps that we bought on the beam, to the weaving department. These were charged directly from the bills as they were received, eliminating the use of the requisitions entirely except when it became necessary to effect a loan between the departments, in which case the overseer was to send a requisition which was left as a receipt to be later counter

COLLECTION NOTE. EMPLOYEE NO. 41144

NAME Martha Culbert PERIOD ENDING March 17-1912

DEPARTMENT Fashions OPERATION Topping

ARTICLE	SIZE	DATE	QUANTITY	TOTAL	PIECE-WORK RATE	PIECE-WORK AMOUNT	DAY WORK HRS	DAY WORK 10'S	HOUR AVE	DAY WORK HRS	DAY WORK 10'S	DAY WORK RATE	DAY WORK AMOUNT	UNIT COST	DATE	BONUS	TOTAL PAY

signed by the lender and sent to the cost clerk at the main office for credit.

We were delighted with this innovation and felt confident that at the end of the year, by making proper deductions from the Jan. 1st, 1912, inventory, we could say to a certainty how much stock had been used in each department. Moreover the total stock used less the weight of the yearly production from any department gave us the weight of the waste from that department. This enabled us to check the weighers' accounts for any department. As a distinguishing mark, the requisition papers for supplies were to be pink, and we were advised to have our overseers requisition for all supplies. We soon changed from this, however, and had the cost clerk charge from the original bills, direct, wherever possible, this being both more accurate and a saving of clerical labor. Most of the supplies in our mill are each used in some particular department, and we have found it a good plan to provide each department with storage space where the overseer could keep his supplies under lock and key. We placed the general supplies in the care of the stock-keeper, who was responsible for the maintenance of a suitable stock. These general supplies were requisitioned by the various departments and the stock-keeper made a return of the pink slips daily to the cost clerk.

About two months before the beginning of the year 1911 our efficiency experts sent a special clerk to obtain data in regard to our pay-roll system in order that the home office might prepare a new pay system to meet our requirements. We had always used monthly time-books in each department. These had been kept by the overseers in the smaller departments, and by the regular clerks in the others. Each department sent to the office a weekly pay-roll copied from these time-books on sheets of a size convenient for filing, each sheet showing the hours or the piece work as units with the rate filled in against each column. The extensions were always made at the office and the pay-rolls returned to their respective overseers for approval. Because of their familiarity with the work they were able to detect errors that would not be apparent to the ordinary clerk.

At the beginning of January the experts brought along the new pay system. They had eliminated several records and substituted production notes for the old time-books. These notes were to be made up each day from the production and sent to the office weekly in place of the old pay-roll. We thought this was surely a saving in time and decided to give the system a trial. We met a few difficulties as you may see. Each operative of our upwards of 1,000 operatives had a production note 8 1/2 inches wide and 5 inches long, and in the six weeks the system was on trial we filled quite a good sized cabinet, and were wondering how long it would be before it would be necessary to enlarge the office. Every time a question was raised in regard to the pay of any operative it became necessary to search for their production notes at the office, and, although the notes were carefully arranged, it took much longer to find what was wanted than under our old method. Instead of from two to six sheets it was a matter of from thirty to four hundred. Under the old pay-roll system probably 65 per cent. of the errors were corrected at the departments by comparing the operatives' time with the department time-book, and it was not necessary to send to the office except when there had been an error in the extensions at the office.

At the end of six weeks we returned to the old pay-roll and all our timekeepers were delighted, as well as we ourselves, when we saw the last of what was getting to be a veritable white elephant. We gained one point, however, in that we made a division and placed the full directive force at the head of the pay-roll department. Their names were followed by the names of the piece workers and machine tenders who were paid by the hour. We ascertained the unit cost of the operatives as accurately as possible, while for the overseers and general help we made a careful division of the total expense in each department and applied the amount to the unit cost on a percentage

basis. The totals of the department unit costs gave us the actual labor cost. After each pay-roll was made up we transferred the productive summaries to a special cost book which showed at a glance whether the actual cost was exceeding the estimates. This enabled us to detect all leakages and waste in the expense account and take prompt measures to correct the defect.

We do not pretend that the method that we followed was the only solution of our problem or that we are an authority on the efficiency question, but it is my opinion that many of the new systems entail a large amount of clerical labor that is not only expensive but quite unnecessary, that three-quarters of the slips should never be used and that more accurate results can be obtained by charging direct from the original bills, as I have tried to outline in the foregoing article. It is due our experts that we say that we found them always courteous and very capable, and that with their assistance we have evolved a new system in our mill which will be of value in the years to come.

IDLE MACHINERY IN THE WOOLEN AND WORSTED TRADE

Following is the report issued by the National Asociation of Wool Manufacturers on June 15, showing the idle machinery in the woolen and worsted trade on that date:

Boston, Mass., June 15, 1914.

Dear Sir: We present below a tabulated statement of the answers to our inquiries as to machinery active and idle on June 1, 1914, in the woolen mills of this country. The percentages of idle machinery in previous reports for March 2, 1914, and December 1, 1913, when these investigations began, are included in this statement.

The replies to this latest as to previous inquiries represent the major part of all the woolen machinery of the United States. The responses have been more exact this time, and have as a rule given the number of machines active or idle as we have requested, instead of stating the facts in the form of percentages.

On September 1 another inquiry will be made—the results, as in this instance, being promptly published for the information of all those directly or indirectly interested in the industry.

The replies to the question whether a more frequent inquiry and report are desirable indicate that manufacturers generally are content with a canvass every three months.

Winthrop L. Marvin,
Secretary.

	Total Number Reported June 1, 1914	Per Cent. of Idle to Total June 1, 1914	Mar. 2, 1914	Dec. 1, 1913
Looms, above 50 in.	37,596	24.6	24.8	24.9
Looms, 50 in. or less	10,890	25.	17.7	27.2
Looms, Carpet	2,876	28.3	24.5	32.1
Woolen Cards, Sets	3,229	19.4	19.5	21.4
Worsted Combs	1,743	15.5	13.	23.1
Woolen Spindles	985,641	25.8	22.2	22.7
Worsted Spindles	1,571,177	18.1	22.	26.

WOOL GOODS IN THE TWENTIETH CENTURY

The exports of wool goods from Great Britain, Germany and France are compared in a letter by J. Chapman to the Manchester Guardian, from which we take the following:

Again starting with the year 1899, I have compiled the following table for purposes of comparison. It sets out the record for Great Britain and her two largest, most active, and indeed only serious competitors in sales of woolen goods among the nations. From the British figures, flocks, rag wool, and wool waste have been omitted, as they are treated differently at different times by the Board of Trade. With that exception the table relates to all woolen goods exported:

Year.	United Kingdom. £1,000	Germany. £1,000	France. £1,000
1899	23,192	13,496	12,043
1900	23,414	14,387	10,472
1901	20,844	13,342	9,513
1902	22,368	14,358	10,181
1903	24,056	15,054	10,145
1904	26,200	15,647	9,705
1905	28,299	17,561	9,396
1906	31,362	16,144	11,092
1907	33,684	17,740	12,626
1908	28,108	15,970	9,479
1909	30,656	15,524	11,083
1910	37,505	16,560	11,549
1911	37,231	17,247	10,642
1912	37,766	...	...
1913	37,681	...	...

Year.	France and Germany Combined. £1,000	—Excess of— United Kingdom. £1,000	Germany & France £1,000
1899	25,539	...	2,347
1900	24,854	...	1,440
1901	22,855	...	2,011
1902	24,539	...	2,171
1903	25,199	...	1,103
1904	25,352	848	...
1905	26,957	1,342	...
1906	27,236	4,126	...
1907	30,366	3,318	...
1908	25,719	2,389	...
1909	26,607	4,049	...
1910	28,109	9,396	...
1911	27,889	9,342	...

The table plainly tells us that, in the twelve years, 1899 to 1911, Great Britain gained some £14,039,000, Germany's increase was £3,751,000,

rather more than one-quarter of ours, while France actually fell behind by £1,401,000. In 1899 the combined sales of Germany and France exceeded ours by £2,347,000. Twelve years later our lead over the two reached £9,342,000. Our relative gain in twelve years was thus £11,689,000.

But not only so. As in the case of cotton, our progressive movement has been achieved mainly in standard staples in general demand and of permanent utility. It is in cloths and stuffs that expansion has been most manifest, these goods claiming close upon nine millions of the fourteen gained by all woolens. In 1899 Germany and France together sold abroad woolen cloths and stuffs to a value higher than that of Great Britain by the considerable sum of £5,777,000. In 1911 Great Britain disposed of £3,857,000 worth more than Germany and France combined—a relative gain in twelve years, as against our two rivals, of £9,634,000. This is equivalent to over 57 1/2 per cent. of their entire business in 1911.

BRITISH BUNTINGS

By Our Regular Correspondent

One fact to note about the bunting trade in England is that it is an old one. The fabric belongs essentially to a class of narrow and coarse stuffs, made from long wool, such as have been a typical manufacture of the Halifax district for about two and a half centuries. The earliest specific reference to the article is found in a "History of the Firm of James Akroyd & Sons, Ltd., of Halifax," which relates that the founder, in the last quarter of the 18th century, was making "18-inch lastings, calimancoes and low wildbores called 'Little Joans,' very similar to modern buntings and used for signal flags." The goods are still a characteristically Halifax production and are made there by at least four firms. A similar number of firms in Bradford, one at Colne and one at Silsden compete for the Engiish naval contracts. The business is open to any owner of narrow looms. Without apparent exception the manufacturers of the fabric all buy their yarns from local spinners and apparently all but one send out their cloth to be stoved or dyed. In order to secure its interest in the bunting dyeing trade the Bradford Dyers' Association took over the looms and dyehouse of W. Bancroft & Sons, Halifax, and it operates both departments of the business.

The bunting trade is not ordinarily a large one, although the article is exported and used by foreign navies. From time to time it is liable to sudden expansion, as in the coronation year of the present King when the demand for bunting from official and private sources drove up the price of Lincoln wether wool to heights which exerted a good deal of attention at the time. The better buntings are made from Lincoln wool and such Irish wool as Roscommon and coarse wools from Scotch blackfaced. The tendency of Scotch and Irish wools to kempiness does not disqualify them for making brightly colored flags, as it does for the regular lines of dress goods. It is possible that bunting yarns may be made with imported crossbred wool from New Zealand and Argentina, but the English lusters and demi-lusters are the central type. It is well known that the Bradford combing and spinning mills are especially equipped for handling bulks of these classes of material cheaply and some idea can be given of present values.

For a good order in January last a Bradford spinner quoted to a bunting maker 35 1/2 cents for 2/16s warp and 35 cents for 1/16s filling and probably three to four cents more would be needed today. The yarns were strong and hairy and probably made from Scotch wool. They were for a coarse cloth. The standard count in the bunting trade is 2/32s and I am able to send a sample of yarn in this count of a regular bunting yarn for which the quotation is 44 cents and the bottom price certainly 43 cents. The sample of yarn is in oil and not quite fresh, but it will serve to show the class of yarn that is bought by those who make the goods and will give the scale of current values.

A sample is sent also of a standard fabric supplied to the British Navy, to merchant ships and to the railroad companies. The cloth is woven in 18 and 21-inch widths with an open structure, single filling and two-fold warp.

The goods are judged in use by their durability, their brilliancy of coloring and their behavior when wet. In most of these respects and in their comparative freedom from soiling they are to be preferred to the cotton buntings used for cheap flags and—apparently—by the Norwegian Navy. The last-named power has been known to buy cotton flags rainproofed by the standard acetate of alumina and wax process.

ENGLISH NOTES

By Our Regular Correspondent

The badness and unprofitableness of trade is a prolific source of comment. The Lancashire districts in which colored cotton goods are woven for the Near and Far East are heavily hit and operatives are making only about half wages. Elsewhere in the cotton industry conditions are somewhat irregular, but not so bad. Estimates as to the number of standing looms in Bradford vary from 20 to 33 per cent. Wool sorters and combers are badly short of work and spinners have both stocks of yarn and shortage of business to trouble them. The fine worsted makers are losing three to four cents on their yarn and are just keeping their mills running. In carded woolens business is quite brisk and a big trade is doing with the wholesale clothiers. Makers of fine woolens also feel the pinch of wool prices. This does not promise to be a good year for any major branch of the industries and the worst placed branches have some miserable months in front of them. The black outlook before the worsted trade may be relieved by a sudden change, although there are no present prospects of a heavy fall of prices.

* * *

The account which follows and shows the British exports of textiles to the United States for the periods January-May 1913 and 1914 is to the same effect as the statements given in previous months. Shipment of cotton piece goods is increasing and the increase is about equally divided between dyed goods and bleached goods. Trade in unbleached cloths has fallen off and there is a gain of 700,000 yards under the head of prints. The total values of the cotton cloth business are (1913) $2,871,000 and (1914) $4,344,000. The greater yardage under the heading "Woolen tissues" involves an increase from $957,400 to $2,616,600. It is impossible from the monthly tables to distinguish between worsteds sent to America and dress goods, but the values can be given and they suggest that the proportions of each kind are about the same as formerly, although the bulk is so much larger. Last year the value was $1,072,000 and this year it is $4,540,400. It may be worth adding that "worsted yarn" is classed apart from alpaca, mohair and cashmere yarn and that the tables do not show the United States as a separate destination for the latter. The large increase in the weight of worsted yarn shipped is accompanied by a relatively greater gain in value, for the $13,700 of a year ago has become $585,800 in the present:

Jan.-May, inclusive	1913	1914
Cotton yarn .....lbs.	2,720,700	2,712,300
Cotton piece goods .....yds.	17,836,300	27,657,300
Worsted yarn .....lbs.	23,500	846,200
Woolen tissues .....yds.	895,100	3,293,200
Worsted tissues & stuffs, yds.	3,736,500	14,027,600
Spun silk yarn .....lbs.	276,571	335,091
All-silk broadstuffs .....yds.	104,301	104,255
Mixed silk broadstuffs ..yds.	183,514	600,840
Jute yarn .....lbs.	182,000	1,034,600
Jute piece goods .....yds.	36,600,100	29,356,700
Linen yarn .....lbs.	970,800	1,220,900
Linen piece goods .....yds.	55,183,200	54,458,500

* * *

The classification adopted for British exports and imports has been evolved slowly in the course of time to suit the peculiar requirements of the country and its detail may not actually be of much assistance to those who are framing classifications to fit American trade. The arrangement is a little more elaborate than can be judged from the abridgment above. The general rule is that quantities have to be stated and also values, although in the case of minor articles like laces where neither weight nor length is informative, the returns give values alone. The export tables are constructed to show monthly the quantity and value exported to every market of more than a certain minimum of importance and they show the shipment of cotton piece goods to each of about fifty separate destinations. The statistical schedule is headed Yarns and Textile Fabrics and under Cotton there are separate records of Cotton waste, Yarn gray, Yarn bleached and dyed followed by Piecegoods gray; bleached; printed (a) flags, handkerchiefs, shawls in the piece (b) other sorts. Then come piece-dyed goods; manufactured from dyed yarn; and flags, handkerchiefs, shawls, not in the piece (a) printed (b) other sorts. These are all totaled in summary

tables and the whole is designed to serve two ends; to show what goods are going and where they are going and then to be of use and interest to manufacturers and merchants alike. It will be seen that in the cotton classes there is no discrimination as to widths and at present none is found necessary. The simplicity of the tabulation is preserved by dispensing with all non-essential distinctions.

Under Wool there is a separate heading, Flocks, followed by Tops, Woolen yarn, Worsted yarn, Alpaca Mohair and Cashmere yarn, Unenumerated yarn. This is succeeded by the two classes, Woolen Tissues and Worsted Tissues, and the totals (but not the particulars) of these are further dissected into Heavy or Light, Broad or Narrow, All Wool or Mixed. Goods are technically "heavy" when they weigh above 11 ounces per square yard, they are "broad" when they exceed a nominal 27/28 inches and "mixed" when they contain other material, but are still known as Woolen or Worsted. Stuffs which are included with worsteds in the general classification are shown as a bulk line in "Stuffs, Dress Goods, Linings, Lastings, etc., All Wool and Mixed." There are also three unimportant classes: Damasks, Tapestry and Furniture Stuffs; Wool and Mohair Plushes; Flannels and Delaines which descend from the days when the articles named were of greater consequence. Carpets and Carpet Rugs; Blankets; Hosiery (subdivided into Stockings and Other); Traveling Rugs (to avert confusion with floor rugs); and Smallwares round off the classes of wool goods.

The system is extended in its simpler form to silk; lace; haberdashery and millinery; jute and linen. One good thing that can be said about the monthly returns thus prepared is that they are invariably issued on time and that they are rarely found to need material correction. On the 8th of each month one can depend on knowing with fair accuracy both the amount and the direction of the outwards and inwards business in textiles and all other goods. The broad accuracy of the statistics has never been impeached. Nobody has an interest in giving false figures for the details are for statistical purposes alone and fines can be inflicted for carelessness. The blanks are filled out along with the shipping or forwarding instructions, odd fractions of money or quantity being disregarded. Only reluctantly are any changes made which obscure comparison with previous years, so that one can trace the course of business in goods of a given class for forty, fifty or more years back. Altogether, the "Accounts relating to the Trade and Navigation of the United Kingdom" constitute one of the best things business men get from the British Government, and their cost to subscribers is 36 cents a month.

* * *

A public caution issued by the Pepperell Manufacturing Company announces that instances of the infringement of its trade marks have been brought to light and declares the company will defend to the fullest extent its right to the winged griffin device combined with the word "Drillings" and the company's name and address. It appears that the mark has been duly registered, so that redress should be obtainable if the parties can be traced. There are not less than 700 firms exporting cotton goods from Manchester and they are of all nationalities—European, American, Asiatic and African, as well as English. There are the bleachers and packers who are ordered to put certain marks on the goods sent to them and there are over 80,000 registered and unregistered marks in use in the cotton trade. These marks are used singly and also collectively in company with each other and it can never be very surprising to find that in this welter of persons and of marks somebody has gone wrong. The brands used are very often those that are ordered by the foreign customer and it may easily be that some African, Indian or Chinese dealer is initially responsible for the false use of the Pepperell brand; a name that is by no means ill-known to those who follow the market reports received from the consuming countries in the East.

A new sort of factory inspection was instituted when the Home Secretary was brought down to Lancashire to look at artificial humidification for himself. The employers, the employed and the regular factory inspectors each selected two mills to show in contrast the new and the old methods of enabling heavy-sized warps to be woven. The Secretary is the Minister responsible for the factory laws and the person who has to assess the value of the conflicting statements put before him by deputations. It is not probable that two days' experience enables a lawyer to appreciate all the fine technical points involved in weaving under fluctuating conditions, but it was enough to show Reginald McKenna that even in the oldest and least elaborately equipped premises the weavers looked healthy. Of the more modern humidified mills the Minister formed a most favorable impression and the union officials have quite failed to persuade him that humidification is sin and ripe for root and branch abolition. The union officers have a special predilection for a humidifier which moistens the warp without spraying the surrounding air, but the Blackburn and Preston employers, who are the ones principally concerned in weaving sized goods, are not content with the results obtained upon all of their cloths.

* * *

Anybody in the textile districts in England will confirm the report given to the National Cotton Manufacturers' Convention by John P. Wood. Every factory inspector has his own district and his own set of ideas to which the district has to conform. The position would be more tolerable were the inspectors never changed, but every few years a new inspector is imported and the arrangements that were entirely satisfactory to No. 1 have to be changed to appease No. 2 and changed again to suit No. 3 and his successors. Demands for uniformity, or for a court of appeal, have been made, but have been hitherto ignored and indeed it is not certain that a definite constructive policy would settle the dissatisfaction. There is an analogy to go by in the position of the Marine Department of the Board of Trade, whose constructive business it is to lessen the loss of life in "Titanic" or "Empress of Ireland" mishaps. Among shipping men the conviction is strong that Government rule has done more harm than good in the discouragement of individual initiative. The officials approve the useless thing that has been done before, for the reason that it is in strict accordance with precedent. The new thing, ten times better, but hitherto untried, is condemned because no precedent can be found for it.

* * *

If raw cotton were often the means of transmitting smallpox the fact must have been established long before now. Cotton has been accused of carrying the germs of the disease on past occasions, but the evidence has never been other than circumstantial and the case is the same in the present instance. Ten persons in a cotton mill at Rochdale have been smitten with the disease and nine of them worked in a picker and card room in which certain Mexican cotton had been used. The cotton accordingly gets the blame at Rochdale, but some other source will have to be found for two other cases occurring simultaneously some forty miles away. We get smallpox in this country at periodical intervals of ten to twelve years and in accordance with this cycles another outbreak is due. Its coming has been looked forward to with apprehension, for in several textile districts the prejudice against vaccination is strong and in many of them a round half of the population are unprotected by vaccine. It is possible that other preventive measures will be effective in curtailing the extent of the damage, but a recrudescence is in any event to be expected because the public have again become susceptible to the ailment.

The natural supply of silk for the whole world, for, say, 4,000 years, the monetary value of which is incalculable, has depended almost entirely upon the instinct of the caterpillar of a most inconspicuous moth to provide for itself a snug case in which its metamorphosis into its perfect form might be effected.

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

This Series began in July, 1911

Translated and Revised by Samuel S. Dale

FANCY DOUBLE WEAVES

Matelasse. Closely related to corded weaves, already described, are double weaves in which the stitching forms the pattern. To this class belongs the so-called pique weaves, which will be described later. As a rule the cloth is set 2 face 1 back both ways and stitched by raising the back warp above two adjacent face picks.

FIG. 1521

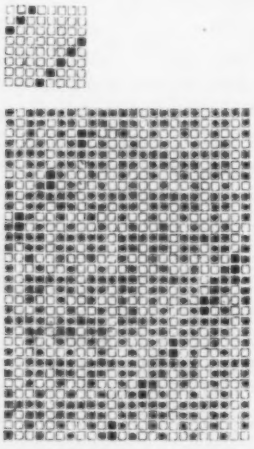


FIG 1522

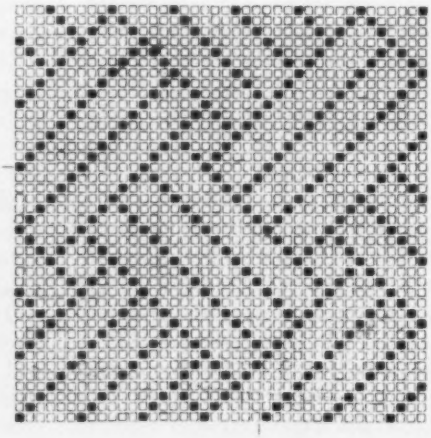


FIG. 1523

The double plain weave constructed in this way and shown at Fig. 1522 is set 2 face 1 back in the warp, 2 face 1 stuffing pick 1 back pick in the filling. The motif for the pattern is shown at Fig. 1521. It is evident that a depression will be caused where the two textures are stitched, while the surface where the cloth is unstitched will be raised. The effect is heightened when the back or stitching warp is woven from a separate beam under greater tension than is on the face warp. This raised effect is made more pronounced by introducing a stuffing pick or coarser yarn, which, as shown by Fig. 1522, lies between the face and back.

The face is often woven with a twill, basket or similar weave; the back weave is usually plain. Fig. 1524 shows a 2 up 2 down twill on the face with a plain back.

FIG. 1525

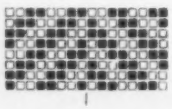


FIG. 1526

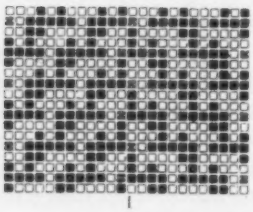


FIG. 1527

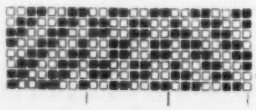
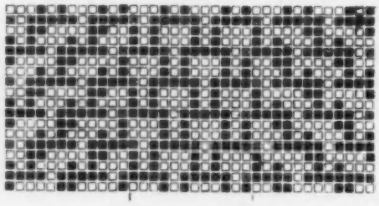


FIG. 1528



(Copyright, 1914, by Samuel S. Dale.)

The motif for the pattern is shown at Fig. 1523.

Many woolen and worsted cloths of this kind are stitched to produce a striped effect. The last face thread of one stripe and the first face thread of the next stripe are stitched in plain order by passing under every alternate back pick. This construction is shown at Figs. 1526 and 1528, the back in both cases being plain. The crosses represent the stitchers, which are sinkers. Fig. 1525 is the face weave of Fig. 1526; Fig. 1527 is the face weave of Fig. 1528.

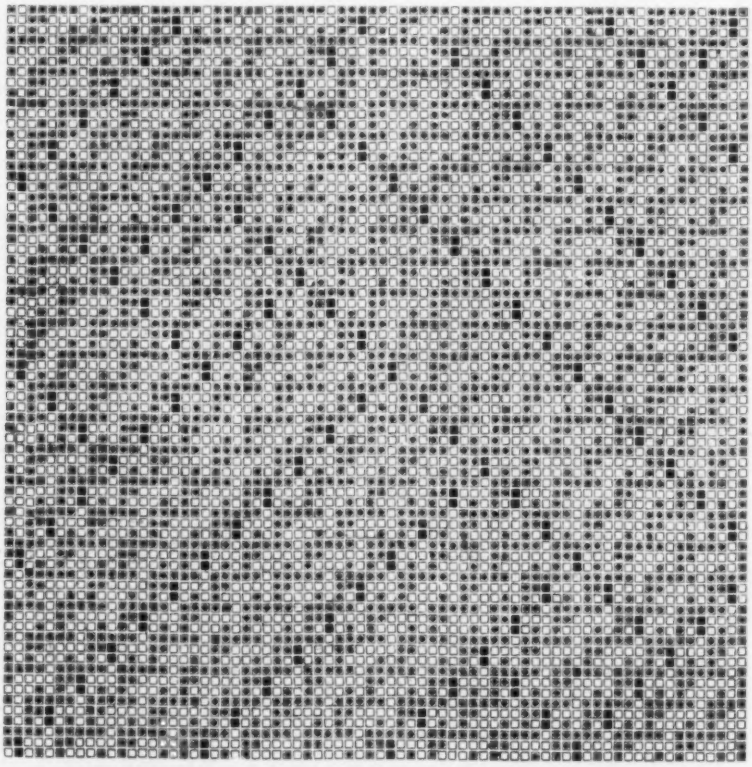


FIG 1524

To run this matelasse effect across or filling ways of the cloth, the back warp is interlaced in plain weave order with two adjacent picks, as shown at Fig. 1529, in which the dotted squares represent the stitching risers.

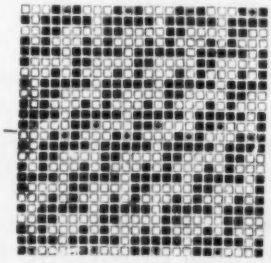


FIG. 1529

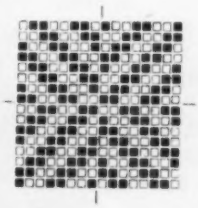


FIG. 1530

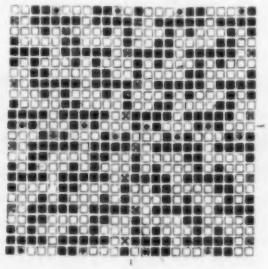


FIG 1531

Patterns are frequently made by stitching along both filling and warp lines to produce

squares, cubes, braided and other effects. The weave of this kind, shown at Fig. 1531, consists of a twill face and a plain back. The stitching risers are shown by the dotted squares; the stitching sinkers, by the crosses. Fig. 1530 is the face weave.

In Fig. 1532 the warp and filling lines of stitchers form a checkerboard pattern. The face weave pattern is obtained by a combination of a 2 up 2 down twill with a 2 up 2 down basket, the back being plain. The construction of these patterns is sometimes simplified by weaving the stitching threads in the warp or filling in 3 up 3 down order.

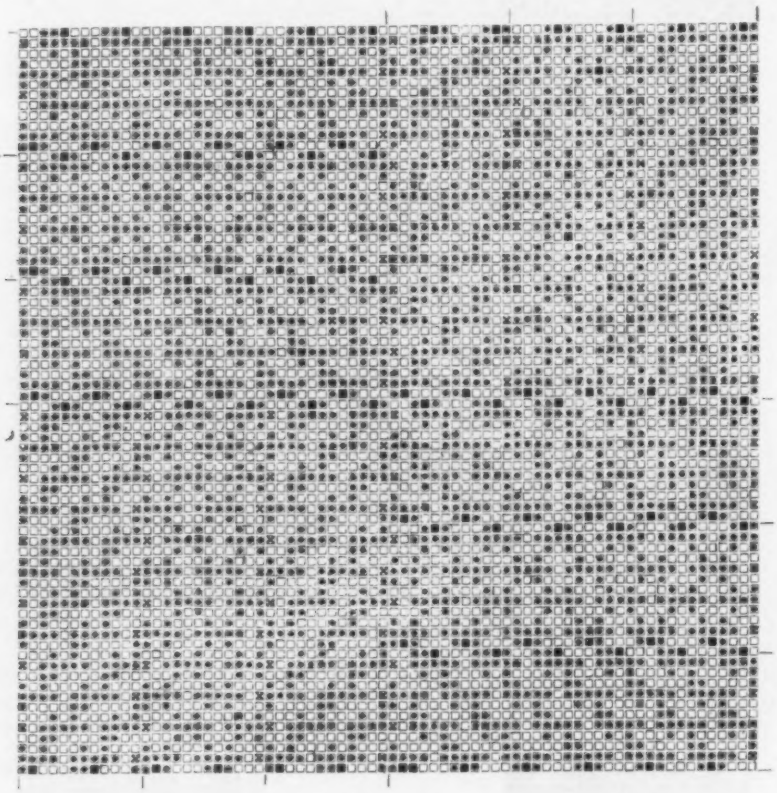


FIG. 1532

Figs. 1533, 1534 and 1535 show weaves frequently used for the so-called relief patterns in silk and worsted fabrics.

MONTAGNAC

The face of montagnac, used for overcoating, is covered with loops of soft stock, part of which are intact while the others have been broken in finishing to form tufts of fibers. The fabric is loose and bulky, these qualities being obtained at the expense of durability.

The warp has an open set to allow a large quantity of filling to be driven into the cloth, which is woven narrow, as little, if any, fulling is required. The warp plays a subordinate part in the make-up, being almost completely hidden from sight on both face and back. The ordinary grades of these goods are made with ground and effect filling; the better grades with ground, back and effect filling.

The effect filling, which is to form the tufts or loops on the face, is from 2 to 5-ply yarn and has only enough twist to stand the process of weaving. The effect pick is floated over a number of face warp threads and then either stitched in plain weave order for a few warp threads or passed under them; the latter method is shown by the

cross section at Fig. 1537. The ground filling serves to bind the fabric together and give it durability, while the back filling increases the thickness of the cloth and enables a fluffy finish to be obtained on the back.

FIG. 1533

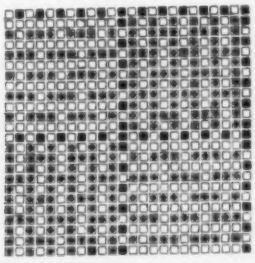
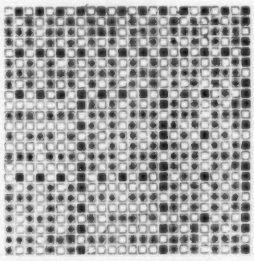


FIG. 1534



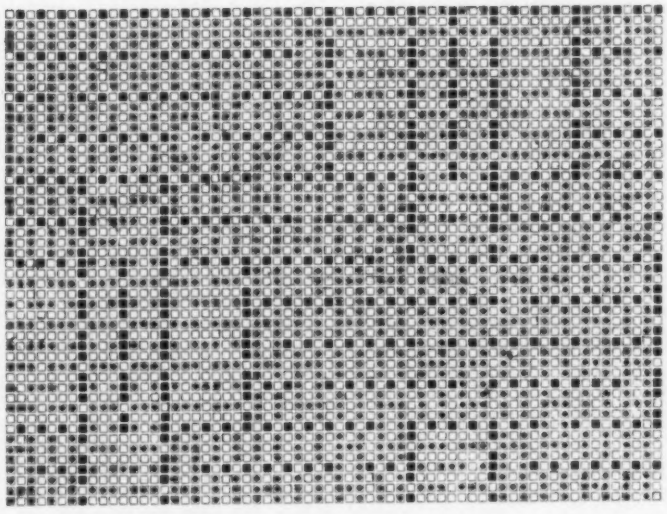


FIG. 1535

The soft twisted effect filling floating on the face is torn apart in the gigging or napping process at the points indicated by the arrows, Fig. 1537, and the subsequent operations of beating and brushing raise the loose tufts and form them into clusters which produce the well known montagnac finish Fig. 1538 is a cross section of the cloth at Fig. 1537 after the effect filling has thus been torn apart and the tufts made to rise from the surface of the goods. A portion of the weave for this fabric is shown without stitchers at Fig. 1536.

To increase the flaky effect and cover the face better the effect picks are sometimes woven as shown at Fig. 1540, where each effect pick passes under the warp threads over which the preceding effect pick floated.

FIG. 1537

FIG. 1538

This brings the tufts closer together, the face of the cloth being entirely covered with

the effect filling. This method is illustrated by Figs. 1540 and 1541, the first showing the woven cloth; the second, the gigged cloth;

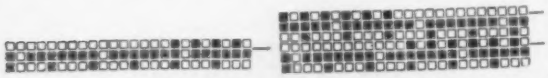


FIG. 1536 FIG. 1539

the weave is shown without stitchers at Fig. 1539.

The ground filling is usually woven plain,

FIG 1540

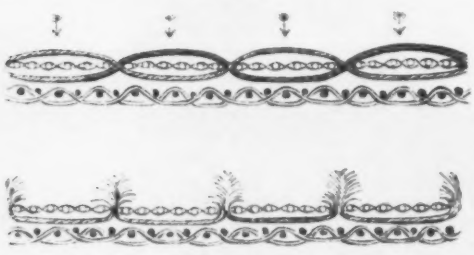


FIG. 1541

while a plain weave, a 2 up 2 down twill, a 3 up 1 down twill or a 4-leaf broken twill is used for the back.

AMERICAN FLAX CULTURE

BY CHARLES RICHARDS DODGE

Flax culture in the United States is something like the snakes in Ireland of popular legend—"there ain't any." It is true that in different sections of the northern temperate zone of the United States attempts have been made from time to time to grow fiber flax as an industry; and we do grow one or two million acres of flax for seed, sacrificing the straw—which is wholly deficient in proper fiber, and practically worthless save for tow for upholstery. Yet in many localities it is possible to produce grades of fiber that will prove as good as the average "Irish" as imported, better than the average Russian, and will command the prices paid for average imported flax of all countries, Belgium excepted.

In the early years of our country, before the era of the factory system, good flax was produced all over the United States, from North Caroiina to New England, but it was a household industry. Since the establishment of the factory system, at one time or another up to the present, good flax has been produced in nearly every northern State. Seventy-five or eighty years ago New York was a famous flax growing region. And within twenty years the writer has witnessed household spinning and weaving in Virginia from home grown flax which was of superior quality.

An experiment directed by me some years ago in the Puget Sound region of Washington yielded some very fine flax, one lot of which (from straw sent to Ireland for treatment by practical mill men, and extra hackled) was valued at $500 per ton. Twenty years ago, or more, a Belgian flax farmer, Eugene Bosee, living at Green Bay, Wis., was very successful with the culture. One year's results, from a 6-acre plot, were: 3,718 lbs. of fiber, which was sold in Boston at 11 cents per pound, 600 lbs. tow at 2 cents, and 60 bushels of seed at $1.00 per bushel, giving a clear profit over all expenses of $38 per acre. Some years later, in Minnesota, he was able to get 810 lbs. of fine line flax from an acre, besides 600 lbs. of seed. Other examples of successful culture might be cited, showing that with knowledge and skill, there is money in flax. At present the "industry" is confined to Michigan, chiefly, though Oregon has been a small producer. The Somers Linen Co., at Port Huron, Mich., and the James Livingston Co., with headquarters at Yale, Mich., have been producing good flax for a long time, sowing this year 1,200 to 1,500 acres.

If good flax has been produced in the past in the United States and can now be grown in many localities, yet its production has never approached the proportions of a national industry. What is the trouble? The question is not easily answered, though many causes influencing the existing condition might be cited. The chief reason, briefly stated, is lack of interest on the part of anybody to start the ball rolling. The industry never can be set upon its feet by the farmers acting alone, because in nine out of ten cases, the undirected effort could result only in flat failure. They will have done their part when, working under intelligent direction, they have grown the straw, leav-

ing all subsequent operations to a class of skilled operatives who will come between the grower and the manufacturer. The retting and especially the scutching are not done on the farm in foreign countries and cannot be done here. This work is done largely in Russia and low-grade fiber requiring most careful sorting by the buyers is the result. In Ireland where a lot of bog-hole retted flax is produced by the slovenly methods of small peasant farmers some very poor flax is prepared, and it should be remembered that the finest of the "Irish flax" imported into this country is produced in Holland and Belgium, retted in the famed River Lys at Courtrai, and sent to the Emerald Isle across the channel to be scutched.

To establish an American flax industry on practical lines, the efforts must be commercial. The farmer growing flax as an individual would never be sure of a market, and the manufacturer (spinner) would not be in a position to make offers of purchase because he has no security that the farmers could grow flax of the proper standard, or that the flax would be what he could use in his special manufacture. On the other hand he knows that he can import just the kind of flax he requires at any time and in any quantity, and that there will always be a supply to meet his demand. Now the difficulty can be easily obviated by the establishment of scutch mills in the localities favorable to the growing of good flax, the farmers of a neighborhood agreeing to produce, 5, 10 or 20 acres of straw each, under the direction, if need be, of the managers of the mills, who will also sell them the proper seed to sow, and attend to retting the straw. With such a practice a proper standard of fiber could be produced, and the farmers relieved of the difficulty of finding a market. It is worthy of note that in Japan, where flax was not grown 25 years ago, an important flax industry has been built up on these cooperative lines, one concern now directing the enterprise, which has reached a total of 25,000 acres annually cultivated.

From the foregoing it will be seen that the blame for the absence of a national flax industry does not rest on the farmers, but must fall on the shoulders of those who control capital. While absolving the farmers from blame, however, it must be admitted that the average American farmer is averse to turning his attention to any crop which, like flax, demands an outlay of so much extra effort and attention—such as the deep and thorough soil preparation and enriching that is essential to a proper growth; the weeding, which is done in the old world by women and boys on their hands and knees, for good flax cannot be produced upon land foul with weeds—while the danger from accidents due to meteorological causes must always give more or less concern. The Belgians have a saying which, freely translated, sets forth that "seven times the growing flax causes its master anxiety." As to harvesting the crop very few farmers in these days would care to indulge in the back-breaking occupation of pulling flax.

Why capital, and skilled flax workers, have not done their part towards the establishment of a national flax industry, cannot be readily explained, though the reasons may be hinted at. In the first place the American temperament must "get the habit" before it can do things in a large way, and to get the habit there must be a lively incentive. Doubtless if someone went into flax culture on a grand scale, and after making a success of it should prepare an elaborate article for the "Monthly Pusher" on "How I Made a Million Dollars in Flax in Three Years," a lot of people would endeavor to "get the habit," but whether it would result in establishing the industry would be another story.

If a few enthusiastic men or concerns with capital and knowledge were to "get the habit" of growing flax for fiber, and communicate their enthusiasm to others in regions where good flax can be grown, there might be the beginning of an industry that would be worth while, though it is doubtful, even then, if the foreign market would be disturbed to any large extent for many years. One thing, however, is as certain as that the sun shines: Were foreign flax culture to suddenly fail, and the American manufacturers who buy flax were

thrown on the resources of their own country, there would be a flourishing national flax cultural industry in short order.

Misdirected effort can only work injury to the cause. There have been individual efforts to do something that have resulted in failure because the enterprise was entered upon blindly—money and energy wasted. Sometimes it has been an endeavor to do the impossible—to make good, spinable line flax, or something "just as good," out of the coarse Western straw resulting from culture for seed, which everybody ought to know is wholly deficient in proper fiber. In some instances the promotors of these enterprises have deluded themselves, in others have tried to delude capital—or the public.

An American flax industry can be established only by growing the crop on properly prepared soil, using proper seed, following an intelligent practice, and harvesting and retting the straw after proper methods, in order to produce a quality of line flax that will compete with the imported fiber—in short, using capital and brains to an end. And it must be grown perseveringly, not for one year or for three, but year after year, growing each year a little, and trying each year to improve the product. To name the States where flax culture is possible would be to name the entire northern tier of States west of New England, and some others. In Oregon and Washington, particularly, many localities favorable for the culture may be found; and there are sections east of the Rocky Mountains where the culture might be carried on as successfully as at Yale, Fargo, Brown City and Croswell, Michigan, where an average of ten cents per pound is received for all fiber produced including long fiber and tow.

Regarding the culture required to produce good flax, it would not be possible to tell in the limits of this article, and I can do little more than hint at the requisites, referring enquiring readers to the literature of the subject for the details. (See Bulletins No. 1, 4 and 10 Fiber Investigation Series, U. S. Department of Agriculture, 1890, '92 and '98.)

Three things are essential to successful culture: A most careful selection of the soil, with a thorough soil preparation and fertilizing; the use of the best seed that money will buy; and lastly, careful and intelligent handling and manipulation of the crop from the time the flax is pulled until it is ready for the scutcher. The last consideration does not belong to the farmer, but to the manufacturer. A systematic rotation of crops to prepare the land for seeding to flax is considered most important, and is strictly followed in foreign countries—in this country to a lesser extent.

Experience has shown that among the favorable soils may be mentioned: Dark, rich, loamy clays; heavy clay loam well drained, and soils varying from sandy loam to the heavier alluvial of the timber lands. In Ireland any clean land in good fertility that will produce a fair crop of wheat, oats or barley, is chosen. In general terms, a moist, deep, strong loam upon upland will give the best results. A wet soil should never be chosen, and clean land is of first importance.

Too much stress cannot be laid on the necessity for deep plowing and reducing the seed bed to a fine tilth—bringing the land almost to the condition of garden soil. After harrowing until all lumpiness is overcome, the land is made level and smooth with the roller. The use of fertilizer is a chapter in itself—but one word here: A poor, impoverished soil will not produce fiber flax, as this crop of all crops makes heavy demands upon the land. In the matter of seed selection get only the best; and not only the right seed dealer, but the right seed, and avoid imposition as fraud. A proper flax seed should be pure, free from the seeds of weeds, and from all odors that would indicate mustiness, or bad condition that would affect germination. J. R. Proctor, writing upon this subject many years ago in Kentucky, advocated the white Closson Dutch as the best seed for the American grower. Mr. Bosse states his preference as follows: (1) Imported seed grown one year on Belgian soil from seed procured in Riga; (2) Riga seed imported direct, but not Finland seed; (3) Dutch (Rotterdam) seed. Proper flax seed should be

bright, plump and heavy; and it must be noted that good fiber cannot be grown from the average seed of the oil mills.

The seed is sown broadcast by hand, and the work must be done with regularity to ensure an even growth of straw, for an even standard must be maintained throughout the field. As to the time to sow, no definite rule can be laid down. In general terms when the soil has settled and is warmed by the influence of the sun, causing weeds and grass to spring up, and the leaves of trees to unfold—or the first part of May. The crop should never be drilled, as the outside straw will be coarser than that in the center of the drill. In Flanders the seed is sown in the morning, then harrowed in with a close-set harrow, and the land rolled after germination. The quantity of seed to be sown is a matter of importance, as it largely determines the relative fineness of the fiber. When sown for seed only, 2 or 3 pecks per acre will be sufficient, for in seed culture the plants should have space to branch. For fiber and seed 5 pecks to 2 bushels is a good rule, but for fine fiber 2 1/2 to 3, and even 4 bushels is sown—this being the general practice in Belgium where the finest flax is produced. There is little else to be done with the crop now save keeping down all weed growth.

The crop of straw when grown should be pulled rather than harvested with a reaper, which sacrifices several inches of the best part of the stem; besides the square ends of the fiber will not work into the "sliver" at the mills as smoothly as pulled flax. The streaks of scutched line should taper at each end. There are three forms of retting: dew retting, where the straw is spread over a meadow, which is the general practice in this country; pool retting, immersing in pits of still water, the practice in Ireland and in places in Europe; and retting in running water, as practiced in the River Lys in Belgium and also in Japan. As the details of this work cannot be properly described in a few paragraphs, reference must be made to the books for further information. Suffice to say that the quality of the flax will depend largely upon the skill and good judgment of those who have the work in hand. As the scutching properly belongs to the manufacturing side of the industry, we will leave the subject here.

At this time there is an incentive to establish a flax fiber industry in the United States, for in the Old World the culture has been steadily declining for many years, and is still declining. As the manufacturers will always purchase proper fiber, those who may undertake the business will find a ready market at fair prices for all the good flax they can produce.

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BOMBAY COTTON FIRES

In reference to the recent cotton fires in Bombay, H. D. Baker, U. S. A. Consul in Bombay, has addressed a letter to the Government of Bombay, and to various officials and public bodies, in which he says he has just received a cable from the Honorable W. J. Bryan, Secretary of State at Washington, as follows:

United States Government's Agricultural Department's experience indicates heat due friction gin saws occasions fire, which smoulders, eventually reaching surface. Inform interested parties, careful inspection at press box best method of avoidance. (Signed) Bryan.

Mr. Baker adds:

The above cable has come in response to a report I wrote a few weeks ago for my Government concerning the cotton fires at Bombay and the mystery attending their origin, the suggestion having been presented in such report that any information concerning experience with cotton fires in America, might prove valuable. I hope that the above cable may be of some value as affording a possible clue to the cause of these recent disastrous fires in Bombay.

There seems to be a little confusion in the minds of our American friends. In the first place, Mr. Bryan cables about fires in ginning factories and the cause which he mentions would not affect bales stacked as they are in Bombay; secondly, "saws" are not used in India gins, which work with a different mechanism.—Times of India.

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The average cotton crop of the Southern States during the last ten years has been about 11 1/2 million bales of 500 pounds each.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

STREAKS IN LIGHT COLORED KNIT GOODS

Editor Textile World Record:

I enclose a small sample of knit goods which you will notice is streaky in the pink. I have met with this difficulty several times and have not found anything that will take the dirt or streaks out of the yarn without spoiling the color. If you know of any kind of a chemical that will clean woolen, worsted and merino yarn I would like to know of it. Hunter (2246).

I have had this same difficulty when knitting light colored yarn and have usually found that it is dust which has got on the yarn while being wound, or in bundles which were not properly packed or taken care of in the yarn room. I have never found a remedy for the trouble after the yarn is knit. I have tried bleaching it out in white goods without getting the desired results, and have also tried several solutions for removing the spots, but without success. The only advice I could give would be to see that the yarn is clean when taken from the bundle, that clean hands handle it, and that the winding and knitting machines are clean. Bristol.

WASHING WORSTED SWEATER COATS

Editor Textile World Record:

Kindly inform us the best way to wash pure wool and worsted sweater coats.

Seymour (2297).

In washing wool and worsted sweater coats, souse the sweaters up and down in a tub of warm water, a neutral soap between the hands. After rubbing thoroughly put them in another tub to rinse. Repeat the rinsing process two or three times until the sweaters are thoroughly clean. Then put the sweater on sticks shaped like a cross, hanging them in the sun to dry. The sweaters must not be boiled or washed on a wash board. They must be thoroughly rinsed. If these instructions are followed the sweater will retain its size and feel for years.

Delmar.

HOLES IN KNIT FABRICS

Editor Textile World Record:

I enclose a fabric knitted with chinchilla yarn. You will find quite a few holes in it. We are troubled with these holes, especially with the chinchilla yarn. Kindly let us know the cause. This sample is knit on 12 inch flat bed machine, 5 needles to the inch. These goods are knit in strips

HOLES IN A KNIT FABRIC

with a separating thread between them. Sometimes a different colored striping is used in the fabric, of the same size yarn that is used in the other part. The fabric is used for knit slippers. I have paraffined the yarn, sprinkled it and tried everything I know of to make the yarn elastic so that it will not break. Adstock (2245).

In testing this yarn I find that it breaks every time in the black or spotted part. I suggest using a solution of one pint of light colored oil and half a cake of ivory soap, slicing up and adding to four quarts of water, boiling until it is well mixed. Wind the yarn over this solution and I think the trouble will be overcome. If this does not give the desired results, look over the needle bed plates or the knockout plates and see

that they are not sharp or rough. If these are all right then look over the needle division to see that the needles do not rub one against the other. It would also be well to look over the stitch cams to see that they draw the stitch fully on one needle before the second needle begins to draw. Tender yarn, such as is used in this sample, will knit better with a short stitch. This yarn does not appear to be anything more than an imitation chinchilla. The regular chinchilla is a very rough yarn and very difficult to knit. The sample is made with a spotted yarn that has been dyed in clamps. The color is often weakened in dyeing.

Delmar.

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BLEACHING KNIT GOODS

Editor Textile World Record:

Referring to the inquiry by "Sandow" (2260), in regard to the bleaching of knit goods, I would advise him not to use a hot scour as more uniform results can be obtained by the cold process. I would also use muriatic acid in place of sulphuric, as the former can be more easily washed out and is not so dangerous to handle. If the water does not contain any iron it is better to use antichlorine or sodium bisulphite in place of acid as they require very little washing and thus reduce the cost of labor and power. The caustic and soda ash should be mixed in a tank that will hold enough to fill the kier once or twice. Boil the caustic soda and soda ash with as small a quantity of water as possible. When the ingredients are well mixed the water should be added, keeping the steam turned on. Have the solution run in the kier at the bottom. In this way it penetrates the stock without admitting air. I do not think it makes any difference whether the goods are entered wet or dry. Cloth bleachers enter the goods wet, while bleachers of yarn in the skein or on cops enter the material dry. The dry stock takes up more liquor, but the strength remains the same.

I would not advise souring before chemicking. All goods should be well washed both before and after chemicking. If there is any iron present the water should be softened and filtered. Parma.

SPONTANEOUS COMBUSTION OF SILKS

Editor Textile World Record:

We have been informed that certain weighted silks, if stored at a moderate temperature, are liable to ignite from spontaneous combustion. Can you tell us what silks, if any, are subject to this hazard, and whether the insurance companies make any restrictions? Sioux (2137).

Combustion is called spontaneous when it is produced without apparent cause and independent of any flame. Many fires are wrongly ascribed to spontaneous combustion owing to the real cause having escaped observation. Among such cases can be cited the ignition of cotton flyings which collect under looms. Aside from the carelessness of the operative, fires from this cause are always caused by a spark flying from the machine, this resulting usually from a neglect to oil the parts. The existence of pyrophorous materials has long been disputed. The classic experiment consists in soaking a small quantity of cottonade in linseed oil and then placing it in a tightly closed box. At the end of three or four hours there is a marked rise in the temperature, which is followed by the emission of smoke. Then if the box is opened suddenly and fresh air admitted, the material bursts into a flame. This kind of combustion of fibers soaked in oil or grease is the most frequent and is attributed to the oxidation of the fatty material and its fermentation in an enclosed space. Similar conditions frequently cause fire in hay which has been packed in the barn in a moist condition.

W. Zaenker (Leipziger-Faerber Zeitung, 1900) was the first to call attention to the spontaneous combustion of non-fibrous materials. First he cited the cause of the spontaneous combustion of zinc powder, which is used in indigo dyeing and consists of a mixture of metallic zinc and oxide of zinc. This strange phenomenon is explained as follows: The zinc powder being stored in a damp place forms into a solid mass and as a result the temperature rises. If a small quantity of water is poured on the mass, the temperature rises rapidly and the heat is increased by exposing the damp dust to a current of fresh air. Finally the heat sets fire to the paper lining and the staves of the cask, and the fire extends to the surface of

the zinc which is exposed most to the air and moisture. As zinc is a good conductor of heat the flames extend rapidly to the interior of the cask. The material continues to burn rapidly until there remains nothing but pure oxide of zinc.

The same author cites the case of spontaneous combustion in a mass of organic materials and he attributes the cause to the oxidation and fermentation in a restricted space. In concluding the list of causes of spontaneous combustion the case of volatile liquids such as benzine may be cited. Dr. Ritcher claimed that electricity occupies a part in this class of phenomena. If, for example, a piece of wool cloth is shaken vigorously in an open can filled with benzine, the needle of a sensitive spectroscope placed near by will be moved, showing the development of electricity by the shaking of the cloth. If conditions are favorable, that is to say, if the cloth and the quantity of benzine are large enough and the surrounding air is dry and hot, the electricity may become so strong as to cause a spark. The causes of combustion are thus reduced to two: For certain materials the cause is oxidation; for volatable liquids it is electricity.

As spontaneous combustion has been reported at various times in dye houses in which black silk is being colored, I will now turn my attention to that phase of the question. Silk is weighted, not only in order to increase the weight of the fiber, but to increase the diameter of the thread in order to produce fabrics of a rich appearance at a reduced price. The vegetable materials containing tannin answer this purpose perfectly because they increase considerably the size of the silk without diminishing its strength or elasticity. Unfortunately it is impossible to obtain a heavy weighting of boiled-off silk by this method and it cannot be used for light colors. It is for this reason that metallic substances are used. At first the degree of weighting was very slight, but as the demand for silk increased the material was weighted far more heavily. The weighting process has enabled silk goods to be produced at a price within the reach of all classes of purchases, but it has been accompanied by a number of difficulties. For example, the weighted fabrics which, when coming from the dyeing process, possess a normal degree of strength, rapidly become tender and finally fuse or melt. To remedy this condition efforts have been made to restrict the weighting of silk, but without any more success than that following the edict of 1638 by Charles 1st of England. As a matter of fact, silk loses very little of its strength in being weighted and under certain conditions black silk increases in strength to a slight degree, but the elasticity is decreased considerably, especially when the weighting is heavy. According to O. Meister (in the Chemiker Zeitung), tin salts used in weighting silk are fixed on the fiber and envelope the filament so as to resemble a coat of varnish. This weighted material does not possess the same coefficient of dilation as does the silk and under the influence of variations in temperature the mineral coating cracks which causes a break of the silk filaments. the phenomenon being purely mechanical In this connection it is interesting to recall that the molecular structure of glass and enamel may after a long period become so modified as to change in appearance and pass from an amorphous to a crystalline state. This is the phenomena of devitrification. Heavily charged fabrics when exposed to a high temperature lose their strength and elasticity and according to P. Sislay (Bulletin of the Society of Industrial Rouen) the change is due to the dehydration of the weighting material. As soon as the fabric absorbs the normal quantity of moisture, the strength and elasticity are restored.

The action of light on heavily weighted silk is well known. A silk fabric weighted 120 to 150 per cent. when exposed for eight days to the light is completely fused. Silk weighted in less degree is affected in the same manner, but not to the same extent. P. Sislay attributes this change to the presence of protoxide of tin and adds that the light has the effect of reducing the stannic hydrate. The oxygen thus liberated passes to the fiber which is changed by reason of the slow combustion. The stannic hydrate plays the role of a catalyzer which serves to

carry the oxygen of the air to the fiber. It frequently happens that fabrics when not exposed to the light become changed and fused. This result is the more to be feared on heavily weighted goods and it is claimed that silk fabrics stored in temperature climates are less liable to damage of this kind than those stored in hot climates. The change in silk goods not exposed to light is influenced considerably by the temperature, but the presence of oxygen and humidity is necessary in order to have the change take place.

Attempts have been made to prevent oxidation of weighted silk by impregnating the fiber with various substances. Dr. Meister found that the alkaline sulphocyanates rendered the weighted silk more resistant. M. Gianoli used the various products of sulphocyanic acid and M. Sislay obtained decisive results with thiocarbamic acid. From the above it is clear that the heavy weighting of silks results in a more or less intense oxidation of the fibers, which is caused by the action of variable factors, humidity, heat, light, etc. The variation of temperature tends to separate the fiber from the metallic weighting material and at the same time there is a tendency for the fibers themselves to disintegrate. Tin salts reduced to powder and exposed to continuous oxidation of the silk fiber may experience an increase of temperature and may flame up when exposed to fresh air. It is well to add, however, that this is only a supposition, for no case of actual combustion from this cause has come to my knowledge.

The changes in weighted silk show all the phenomena characteristics of spontaneous combustion; this supplies the basis for a perfect analogy. First, we have the oxidation of the fiber which is slowly consumed and the presence of a metallic salt finely pulverized on the fiber. So long as the fabric remains under ordinary conditions the oxidation is carried on slowly, but if for any reason the equilibrium is distributed the flame may burst forth and the tin weighting material may burn as did the zinc powder mentioned by M. Zaenker.

A number of fires in silk mills have been attributed to spontaneous combustion, but this has been supposition and not exact knowledge. Up to the present time spontaneous combustion of silk has not been demonstrated by experiment. In conclusion it is well to recall the statement of M. Zaenker that "no one dreamt of spontaneous combustion in a cask of zinc powder that had been opened, but such combustion has occurred frequently for more than twenty years." Gaul.

BLEACHING AND MERCERIZING PIECE GOODS

Editor Textile World Record:

In piece bleaching and piece mercerizing is it necessary or desirable to dry the goods between operations? After the final wash of the bleaching operation the goods go between squeeze rollers to prevent an excess amount of water being carried into the mercerizing or caustic bath, as otherwise the bath would gradually become diluted. Is it, however, necessary to dry the goods? I am referring to both plain and Indanthrene dyed stripe fabrics. Mayfair (2323).

When the bleaching process has been finished and the goods are ready for the mercerizing bath it is essential that they be as nearly dry as possible. By this I mean that there should be no surplus water left in the goods, otherwise the caustic bath would be weakened and have no effect on the cloth. In some plants the goods are dried thoroughly before immersing in the caustic bath, the contention being that the effect of the mercerization is more uniform than when the goods are run through in a moist condition. In some plants the material is run through a left over bath of caustic before it is run through the mercerizing bath. This is really a weak solution of the caustic liquor which acts as a kind of mordant or preparing bath. The idea is not to dilute the caustic liquor during the process of mercerization. Otherwise if the goods carry with them much surplus water the bath will become diluted, resulting in the first portion of the goods passing through the bath coming out all right, but the latter portion will not be up to the standard.

"Mayfair" should be able to decide for himself whether the goods should be dried before being put through the caustic bath. If he can get the goods through the caustic

bath without its becoming too weak to perform the work then it is not necessary to dry the goods. Of course the cost of an extra run and the steam required to dry the goods should be counted, but if "Mayfair" will try out a bath using both methods and see which gives the best results he should be able to decide for himself. In some plants the goods are dried thoroughly before immersion in the caustic bath and in others they are run through in a moist condition, but are thoroughly mangled before immersion in the caustic bath. Dulcimer.

It is always necessary to dry the pieces between the two important operations of bleaching or boiling-out and mercerizing. Besides the weakening of the caustic soda solution due to its dilution with an amount of water mechanically carried into it, equal in weight to not less than the dry weight of the cloth to be mercerized, there is danger of unequal mercerizing, which is difficult to rectify.

The proper course to pursue in handling goods of the character described is as follows:

Give a good plate singeing.

Boil for eight or ten hours in a kier filled with the strongly alkaline first wash water from the mercerizing operation. This liquor is sufficiently strong with alkali to effect a complete removal of all sizing, etc., from the pieces.

Wash thoroughly, and give a sour with vitriol standing at 1 1/2° Tw. Let lay for two hours at least so that the alkali may be completely neutralized.

Wash at this point to remove any possible excess of acid, and dry. Any water remaining in the pieces at this time only weakens the mercerizing bath.

Mercerize and rinse. This rinsing water is that mentioned above as being used for the alkaline boil immediately after the singe.

Kier boil for eight hours with plain water.

Wash and bleach.

Rinse thoroughly. Give the pieces a light souring with weak muriatic acid, in preference to vitriol, as no insoluble compounds result that are detrimental to the soft feel of the goods.

Final wash.

Various arguments have arisen from time to time regarding drying between operations, mainly based upon the fact that it is believed to entail considerable additional expense, but if it is given some thought and viewed from a practical point of view, and not theoretical, it will be found that drying the goods before entering the mercerizing bath always gives the best results. No set or series of squeeze rollers can do for the goods what the dryers can. Berwick.

MIXING COTTON WASTE

Editor Textile World Record:

I am sending you a sample of knit waste torn up in a Kitson waste picker. I would like to work about 25 per cent. of this with 75 per cent. of good cotton, but have trouble with the waste not mixing uniform. It has been worked until the staple is a little short and so smooth that it will not adhere to the other cotton. Can you tell me of some process or treatment that will roughen the waste or put it in better shape to work? I am spinning 11s hosiery yarn from this stock. Mayfair (2310).

The sample of waste examined showed a large percentage of short fibers and a good many unbroken strings, too many it seems to me. I should try and get this waste more thoroughly broken up, if possible, before using it. I know of no process or treatment that will have a tendency to roughen the waste. If the mixing is by hand, it is best to see that it is done thoroughly, that is, the waste distributed evenly. If this is not carefully done, difficulties will arise.

In working waste with good cotton I have found it best to make as large a mixing as possible, say enough to last two or more days' run, and let this stand for some time in a damp air before using. In this way the whole mass seems to work better and get in a more homogeneous condition. The fact remains though, that unless the good cotton is torn up thoroughly before being put in the mixing, the mixture will not feed regularly in the hoppers.

B. M. P.

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After examining the sample of waste sent me I think the whole trouble lies in the hard twisted thread that is left in the waste after

it has been run through the waste picker. I would suggest first making a solid waste lap on the first breaker, running one waste lap on the intermediate picker and three laps of pure cotton. Be careful to make the same lap out of the waste cotton as is made out of the raw cotton. Waste cotton after it has been run through a waste picker and put into an automatic feed, will feed much heavier than raw cotton. It will be necessary to reduce the speed of the spiked lifting apron about one tooth on the sprocket gear, or reduce the feed pulley about one inch in order to get the same weight of lap out of the waste that is obtained from the new cotton. This will give a correct mixture of 25 per cent. waste.

If the waste is run through the picker twice instead of once the waste will be in a better condition and mix more thoroughly. I have run roving waste through the waste picker twice and the fibers have not been damaged to any great extent. Norwich.

PERCENTAGE OF COTTON IN MERINO YARN

Editor Textile World Record:

Please inform me as to the best method of determining the percentage of cotton in merino yarn. What solution is best to use to destroy the cotton without injuring the wool?

Woodbeck (2328).

The best way to determine the amount of cotton in merino yarn is to boil a sample in a 12 per cent. solution of caustic soda or potash. This removes the wool, leaving the cotton. About 5 per cent. should be added to the weight of the cotton residue in order to allow for a slight shrinkage in the weight of the cotton. The following example will illustrate the process:

A sample of merino yarn weighing 200 grains before boiling in a solution of caustic potash, weighs 160 grains afterwards:

$$160 \times 1.05 = 168.$$
$$168 \times 200 = 84 \text{ per cent. cotton.}$$

PLAN OF A KNITTING MILL

Editor Textile World Record:

We would like to have you illustrate a plan of a mill for knitting ladies' vests. Janero (2298).

The plan shown at Fig. 1 is in my opinion one of the best laid out plants that I know of. Everything is on one floor of about 40 by 80 feet. No washing is done, but if electric power is used all the better, for the engine room space can be used for other purposes. This mill runs on ladies' shaped vests, out sizes. One of the features worthy of attention is the space marked "bin". These bins are about 18 inches high and 4 to 6 feet long, built in the alleys, to hold the stock during the finishing process. There are only 8 frames with a small winder. The boss knitter has charge of both knitting and finishing machines. A forelady has charge of the help. The owner is the superintendent or manager. Trenton.

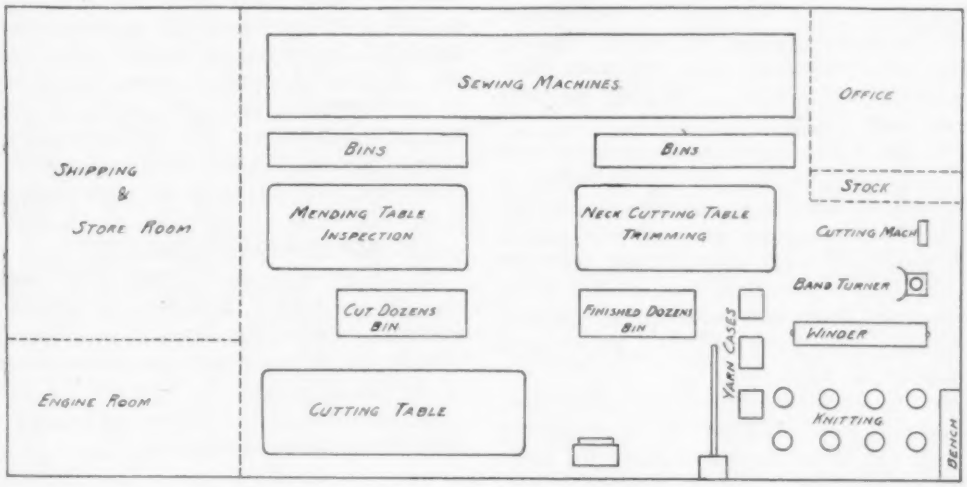


FIG 1. PLAN OF A KNITTING MILL

SCOURING WOOL AND WOOL GOODS

Editor Textile World Record:

I would like to submit the following questions: What alkali is used in scouring wool? What kind of soap (potash or soda) is used in scouring the goods? What alkali? What process is used to neutralite sulphur bleach? What process will give the best and softest white? Peroxide we find too expensive. Bon Air (2329).

The best alkali with which to scour wool is pearl ash. It leaves the wool free and clean of all dirt and grease, and besides, the condition of the fiber is in no way impaired or its luster and elasticity diminished. Wool men, however, have not used it to the exclusion of other scouring agents, such as the various compounds of ammonia which are also to be regarded very highly. The most commonly used of all alkalies for wool is monohydrate of soda crystals for the reason that it does not contain any traces of caustic soda, which is injurious to the wool fiber. Besides the monohydrate of soda, sal soda is also much used for wool.

Potash or soft soaps are better than soda or hard soaps, but the cost of the former is generally believed to prevent their more extended use in scouring wool. Where a good and well made soda soap is used, with the assistance of either of the two alkalies above named, and using care to keep the scouring temperature below 125° F., the results should be excellent.

As a general rule no special neutralizing is resorted to. The goods are well washed in cold and then luke warm water for some time, followed by a passage through a solution of either oil or soap. The most common practice is to wash until all sulphur odor has vanished, and then to run the goods through a bath made up with 3 to 5 per cent. of soluble oil, or double that quantity of soap. The temperature of the bath should not exceed 90° or 100° F. Sufficient time must be given to have the soap or oil penetrate the goods so as to ensure the full measure of softness that is the object of the oiling process.

It is well known that the peroxide of sodium or of hydrogen will give the most desirable bleach for union goods. As "Bon Air" says that it is too expensive, the only thing to do is to consider the adaptability of sulphurous acid either in the form of the liquified article, or by using the commercial bisulphide of soda which is much used in places where there is no sulphur house or where one is not desired.

The bisulphite bleaching process is as follows: The goods are well scoured and rinsed with water to free them from all traces of soap, and then entered into a bath containing bisulphite of soda dissolved to stand at about 10° Tw., to which is added a sufficient quantity of diluted oil of vitriol to disengage the sulphurous acid, which amounts to six pounds of acid per each 100 gallons of bleach bath. The goods are allowed to remain in the bath for several hours, depending upon the degree of bleach desired. Afterwards they are taken out, drained well, and rinsed in a large volume of water to which has been added a small quantity of oil of vitriol to facilitate the removal of the last traces of sulphurous acid. Then follows a good rinse, and the whizzing and drying, which should not be done at too high a temperature. Drying at high temperatures has more to do with harsh feeling goods than any other causes.

Bleaching with permanganate of potassium is used to a considerable extent in European works, but there is no reason to believe that better results are to be secured by its adoption here. It seems to be of good service in places where small output of very good quality is desired.

Berwick.

SELLING SHODDY AND WASTE

Editor Textile World Record:

We would like to have you inform us what commission is usually paid to salesmen selling shoddies, mungoes and wool extracts. We would also like to find out what commission is usually paid to a firm handling foreign shoddies.

Salesman (2311).

As a rule the goods in question are sold by salesmen on a weekly salary. As a matter of fact, we do not know of any salesmen selling these goods in this country on a commission. We cannot give you any estimate as to what would be a fair commission, as this all depends on conditions, terms, prices, etc. M. Salter & Sons.

WAVY EFFECT IN WOOL GOODS

Editor Textile World Record:

Enclosed is a sample of watered zibelene that shows a wavy effect. Please inform me how this irregular effect is produced. Rosarf (2318).

A number of inquiries have been made in order to satisfy this questioner and the various others who have put questions to the same effect. They will find in "Fur Effects on Pile Fabrics" (Textile World Record, August, 1913) a general description of the means taken to procure mechanical effects.

According to information obtained by the best authority on the subject, this particular effect is not wholly mechanical. The curliness is got by making in the first place a correct blend of mohair and wool for filling. The piece is raised upon the teasle gig and water is laid on during the operation, but no amount of or variety of machine treatment provides the desired result unless the right blend has been made. The proportions of wool and mohair are not known, but they can doubtless be arrived at by experiment now that the secret is out. James Strand.

NUMBERING WORSTED YARN

Editor Textile World Record:

We find that French worsted yarn on which we have received quotations is numbered by a system different from that prevailing in the United States. Please explain the French system of numbering worsted yarn and give directions for reducing the French count to an American basis.

Confused (2339).

Five different systems are used in France for numbering worsted yarn:

Roubaix, old	yds. per lb.	708
Roubaix, new		354
Fourmies		352
Reims		347
Metric		496

The first four of these are used in the mills of France, while the fifth is the metric system, by which French yarn is usually numbered when offered for sale to foreign buyers.

To reduce the metric number to the worsted count based on 560 yds. per lb.: Multiply the metric number × .886.

To reduce the worsted number (560 yds. per lb.) to the metric count: Multiply the worsted number (560 yds. per lb.) by 1.129. Examples:

1. Reduce 60s metric to the worsted count: 60 × .886 = 53.1, worsted.

2. Reduce 60s worsted to metric count: 60 × 1.129 = 67.7, metric.

BLEACHING KNIT GOODS

Editor Textile World Record:

I would like information on the following points in connection with the bleaching of cotton knit goods:

1. Hot sour vs. cold sour, sulphuric acid. Is the hot sour advantageous? If so, advise best temperature and give reasons, together with per cent. of acid to use per one hundred pounds of goods.

2. Antichlorine, sodium bisulphite vs. sulphuric acid. Which is the best considering cost, quality of bleached goods, etc., and reason why?

3. Best method of putting chemicals into boiling kier. We are using the following method and would ask that you advise us of any improvements that could be made:

Our goods are packed in the kier dry, the soda ash and caustic soda being dissolved in a separate tank connected to the water main. Both water main and pipe line are controlled by valves and the union of these two lines going into kier. The chemicals and water are mixed in this pipe by slightly adjusting the valves and go into the kier on top of the goods. Our objection to this is that the cold water chills the chemicals containing rosin, and I think causes the rosin to crystallize to a certain extent. Is this possible if the chemicals are well dissolved? Can you suggest a better method of putting the chemicals into the kier?

4. Hydrochloric acid used right after caustic boil and before chemicking. Do you think this is advantageous? If so advise percentage of hydrochloric acid to use, temperature, length of bath, and advantages. Just how does this act on the goods? Should the goods be rinsed before going into chemic? Sandow (2260).

Taking up the questions in their order, I would advise by all means using a cold sour and let the acid do its work in that condition. A hot sour forces the process and the results are not satisfactory. If there is a hot bath of sulphuric acid ready to put in the goods, whether it is a stationary bath or endless rope of cloth is to pass through the bath, it will be found very difficult to keep the solution at a uniform temperature. If it is a stationary bath and the goods are lifted in cold, those entering first get a warm bath while the last portion of the goods get a cold one, thus creating a hot and cold bath for the same bath. If the goods are in rope form the continuous entry of cold goods into a hot bath soon cools the liquor, and it will

be found very difficult to keep a uniform temperature, which is essential for an even bleach. If "Sandow" desires to use a hot bath, I would advise keeping it at about 160° F., the strength of the acid to be kept at 1/2° Be. There is always more danger of tendering material with a hot bath than with a cold one.

Sulphuric acid is the best, both on account of its cost and the ease in handling, acting quicker on the goods. The sour bath has no part in the bleaching. This is performed by the chlorine or other bleaching agent that may be used. The sour bath neutralizes the chemic on the goods. This is the reason why a sour bath should be used to neutralize any particles of the bleaching agent which may be left in the materials.

I presume "Sandow" is using an open kier as he states the liquor goes in on top of the goods. He also states that the goods are packed in the kier dry. This is a mistake unless he intends to give them a "steep," as it is called in the trade. The method used is all right, but the steeping is omitted. This is essential as it prevents the rosin from curdling by the action of liquor meeting at different temperatures. If the kier is filled up with water and the steam turned on after the goods are packed in dry, letting the water come to a boil, the liquor then discharged and a solution of soda ash, caustic soda, rosin soap or other bleaching compound run in, there will be no curdling or crystallizing of the soap. Rosin soap will always separate if used in a solution at two different temperatures. If the steeping process is adopted it will be found that the goods are better bottomed and a better color is produced than without the steep, which would not take more than an hour. Always have the goods well saturated when put in the kier. If the goods are packed in the kier in a dry state, see that they are thoroughly saturated before putting in the boiling liquor.

The hydrochloric acid bath is very good after the boiling process if there is any evidence of iron in the water. If the goods are very dirty it is a good plan to give them an acid bath, as this decomposes the dirt and neutralizes the action of any caustic or soda ash which may remain. This bath is kept at 1° to 2° Be. cold. If a hot bath is used decrease the strength by 1/2°. The goods should stay in this bath for from 2 to 4 hours, but if there is no trouble from iron I would not use it before chemicking.

Wash the goods as much as possible out of the kier into the chemic, then wash again before putting into the sour bath. If they are given an acid bath, wash well before putting into the chemic, otherwise what is known as a buck sour is used, and if not handled very carefully the goods are very apt to be tender. A sour bath does not affect the bleach, but neutralizes the action of the bleaching agent. It also helps to brighten the goods after they have been bleached and to clear the white. Be sure and rinse the goods after leaving the chemic bath and before entering the sour bath, also rinse after the sour bath before they enter the chemic, otherwise the chlorine gas will be liberated and it will be impossible to work in the room.

Alpha.

DETERMINING THE PERCENTAGE OF COTTON AND WOOL IN YARN

Editor Textile World Record:

I would like to find out the percentage of cotton and wool in the following yarn combinations:

1. 4 bobbins of 14s cotton.
   4 bobbins of 36s worsted.
   4 bobbins of 36s cotton.
2. 4 bobbins of 25s cotton.
   4 bobbins of 60s worsted.
   4 bobbins of 56s cotton.

Pontchartrain (2301).

The percentage of each kind of yarn is found by calculating the weight for any given length of yarn unwound from each bobbin. In making these calculations it is necessary first to reduce all the sizes to one system of yarn numbering. 36s worsted is equivalent to 24s cotton. Basing the calculation on 504 hanks the weight of each kind of yarn in combination No. 1 is found as follows:

$$504 \div 14 = 36 \text{ lbs.}$$
$$504 \div 24 = 21 \text{ lbs.}$$
$$504 \div 36 = 14 \text{ lbs.}$$
$$\text{Total} \quad 71 \text{ lbs.}$$

The percentage of each size of yarn is then calculated as follows:

36 ÷ 71 = 50.7% 14s cotton
21 ÷ 71 = 29.6% 36s worsted
14 ÷ 71 = 19.7% 36s cotton

Total 100

The calculation for combination No. 2 is as follows:

60s worsted is equivalent to 40s cotton. Taking 1400 hanks as a basis the weights are calculated as follows:

1400 ÷ 25 = 56 lbs.
1400 ÷ 40 = 35 lbs.
1400 ÷ 56 = 25 lbs.

Total 116 lbs.

The percentage of each kind of yarn is then found as follows:

56 ÷ 116 = 48.3% 56s cotton
35 ÷ 116 = 30.2% 60s worsted
25 ÷ 116 = 21.5% 56s cotton.

SETTING GUIDES ON SPOOLERS

Editor Textile World Record:

To what setting, expressed in thousandths of an inch, should Draper spooler guides be set to obtain the most economical results in both the spooling and weaving departments? The yarn spun is spun to 30s and 40s, warp twist. What speeds on spinning frames have been found most satisfactory for these numbers using full one inch staple cotton, and what twist per inch?

Bleak House (2327).

Care should be taken in setting guides on spoolers irrespective of the make of the guide. The best setting of the guide is determined by experiment. I do not mean to say that the setting should be made so that anything and everything should pass through, or that the setting should be so that the ends will break out easily. When a setting has once been found to give excellent results, it should be strictly adhered to.

Some weavers follow this for setting guides: The square root of the number of yards in one pound of yarn indicates the number of ends that will lie side by side in 25,000 yards in one pound. The square root of this number equals 158, which means that 158 ends will lay side by side in one inch, hence a 30s yarn equals one 158th of an inch in diameter.

Of course it will be impossible to set the guides to this measurement as even the smallest knot would not pass if this was done. In order to make allowance for the knot, the guide is set just about twice this width, or 1/79th of an inch. This probably will be a little too close, but for the best results the guide should not be set very much more open than this.

If a knot tyer is used there will not be any long or loose ends and a closer setting can be made than when the knot is tied by hand.

Using one inch staple cotton on 30s yarn, the spindle speed will be about 9,400 revolutions per minute with a front roll speed of about 115. The twist per inch is obtained by using 4.75 as the standard multiplier, which gives about 26 turns per inch. On 40s yarn the spindle speed should be about 9,500 revolutions with a front roll speed of 100, the turns per inch being about 30.

Wasco.

MACHINERY FOR MANUFACTURING ARTIFICIAL SILK

Editor Textile World Record:

Please inform me where machinery for manufacturing artificial silk can be obtained.

Manufacturer (2337).

Our French correspondent replies to this question as follows: Most of the machines used in the manufacture of artificial silk are built by the manufacturers of that product, but machinery of this character is also manufactured for sale by M. Hermann, Schroers Maschinenfabrik, Krefeld, Germany.

Gaul.

MOTH PREVENTATIVE

Editor Textile World Record:

Can you advise us of a disinfectant the knitting mills are using to get rid of or preventing moths?

Mayfair (2317).

The Berlin Aniline Works, 213 Water St., New York, sell a composition for exterminating moths which is called "Antimot." A description of it appeared in our April issue. We also published in our December, 1911, issue a reply from our English correspondent to a similar question.

Knitting Department

THE KNIT GOODS SITUATION

The weather during the month just past has been such as to move a fairly good quantity of all kinds of light weight underwear. Jobbers tell us their stocks have been reduced considerably by the demands made upon them from retailers.

Several manufacturers state that duplicates on light weights that came to hand during the first ten days of June called for enough merchandise to take up their production for an entire month. This is looked upon as a favorable omen for a good business being placed on the spring lines for 1915, which have just been opened. The chances are, however, that buyers will delay placing their spring business somewhat later than usual.

A few manufacturers had their lines out on the road by June first, but the majority of them opened up between the tenth and fifteenth. Samples have been in the agents' hands for some weeks, but a number of manufacturers held back in the hope of being able to buy raw materials nearer to last year's figures, or of inducing other manufacturers in the same lines to get some advances in prices, which all conditions seem to call for. In this, however, they were unsuccessful. Although cotton and yarns average from 1 1/2 to 2 cents a pound higher, the majority of lines are being shown at last year's opening figures. It is stated that one manufacturer of men's balbriggans who opened last year at $1.75, has taken some orders at $1.70 for 1915. In another instance, however, we learn of one manufacturer who opened his line at $1.75 a few days ago, but has since advanced his price to $1.80.

The prevailing prices on men's 25-cent balbriggans, running from 4 to 4 1/4 pounds in weight are from $1.70 to $1.80, depending upon the trim and finish. Some people believe that these prices indicate simply a willingness on the part of the manufacturers to take a gamble, as conditions do not justify the low quotations. Notwithstanding the apparently low prices, up to the present writing buyers have not shown a willingness to place any large volume of business.

Practically all the manufacturers or their representatives are out on the road and the larger jobbing centers have been visited with the result that buyers have looked over the lines and passed them up with the remark that they would fix up an order on their visit to the market in July. A number of them have given salesmen to understand that they wish to be protected with a blanket order, but such orders are, of course, of no value to the manufacturer without details. Some of the smaller jobbers have placed orders somewhat more freely, but in the main buyers are working slowly.

Lines of men's 50 cent balbriggans are also being shown at last year's figures, which means practically $3.25 for 5 1/4 pound lines with hemmed skirt and made of good type of combed yarn. Garment made with looped-on ribbed skirt may be had at $3.50 and six pound goods are being priced from $3.62 1/2 to $3.75. These quotations carry with them all the modern improvements, such as silk binding, ribbed border on the shirt and in some cases, mercerized tipping on the cuffs. The drawers are made with four button extension strap band, double seat and looped anklets.

The two-piece underwear business has developed into one of flat goods for summer, there being scarcely any demand for ribbed shirts and drawers as hot weather garments; whereas, the single piece underwear or combination suits have up to this time been made almost entirely of ribbed fabric. It is only during the past season that men's combination suits made of flat fabric have been at all called for. There are, however, quite a number of new lines of flat suits being shown for 1915 and some excellent looking garments are being offered in carded yarn at

$3.50 and in combed at $6.50. Buyers are showing considerable interest, especially in the knee length and sleeveless or short sleeve styles.

Women's shaped ribbed vests and pants are being offered again at 1914 prices, although the number of manufacturers of this class of goods is so small that it appears to the writer that higher prices might have been obtained.

An excellent quality of plain stitch cotton garment made with high neck, long sleeve and a mercerized picot trimming around the neck and vests shaped at the sides may be had at $1.90; short sleeves at $1.85; and low neck at $1.75; with 20 cents per dozen additional for extra sizes. The same cloth made into pants with a fairly good quality of Torchon lace trimming at the knees is being sold at $1.90; and at $1.80 for cuff knees. As for better grades, it is possible to buy very handsome lisle thread fabric made on spring needle machines, silk trimming on the vests and the pant band made of a good quality of sateen at $3.25. It is on this line of goods that there has developed quite a demand for pants made with the tape tops, instead of sateen bands.

One of the principal lines in the underwear business on which nearly every manufacturer is working strong, is women's combination suits to retail at 50 cents. From the lines being shown for 1915, this popular priced garment promises to constitute a large share of the women's underwear business. In this line some excellent values are being shown in carded yarn suits at $3.25 and in combed yarn at $3.50. Probably 50 per cent. of these suits are being bought with the torchon lace trimming at the knees, and the other 50 per cent. with tight fitting knees which are quoted at 15 to 20 cents per dozen less.

The three piece suits have come into favor in many sections, and while the Hirsh Company are asking $4.00 for their tuck lisle garment made in this way, it is possible to get a plain stitch cotton suit made by other manufacturers that have been licensed by Hirsch as low as $3.50.

HOSIERY

As with the underwear, the majority of hosiery lines for 1915 spring season have been opened up with but fair success as yet. Prices are as low as last year, but buyers are apparently waiting for July to begin operations.

Many buyers of hosiery are complaining of heavy stocks on hand and this, rather than any criticism on the new line is advanced as the cause of their delay in placing new orders.

In the above general statement, we might make an exception to some lines of children's hosiery, as there seems to be a scarcity of desirable lines of children's goods. As a result, buyers have operated quite freely on some manufacturers' lines that have been sold at 75 and 95 cents and $1.85.

In women's hosiery the situation is not so much changed since our last issue. A fairly steady demand is felt for low priced cotton goods to retail at 10 to 12 1/2 cents, but these are being taken mostly in black and white, except in the South where the trade are taking some high colors. Fine gauge cottons and mercerized goods to retail at 25 cents and over continue to be slow. In fact nearly all lines are slow, except silks, either real or artificial. Mr. Emery of the Lord & Taylor Company, an authority in the hosiery business, is quoted as saying that 75 per cent. of the hosiery worn by women in this country is either artificial or real silk.

Several manufacturers are offering for spring artificial boot silk made of the fiber without the cotton backing, as low as $1.85 and $1.90. It has been claimed for some time that this kind of stocking could not be made to stand laundering, but E. M. Townsend & Co. brought out one the latter part of last year and now several other manufacturers are following suit. Some of them, however, are selling the goods at the risk of the buyer, showing a lack of confidence in their wearing qualities.

As to colors, it is a difficult problem today to pick out the most popular, as every shade of the rainbow is being shown, one manufacturer of dollar silk goods going so far as to

advertise that he carries 79 shades in stock in one quality. The bulk of the business is being done on black and white. The demand for tans has decreased considerably this season, not that tan shoes have lost their popularity, but because fashion has changed and instead of the women matching the color of the shoe, it is the fad to match the stocking with the gown.

One tendency that has developed of late is toward buying silk hosiery with more body, consequently, more service, showing that consumers are realizing that they have not been getting their money's worth in some of the light weight silks they have been buying. As a result of this tendency, goods made with a mixture of silk and fiber plated on cotton are being shown. In higher priced lines, pure silk plated on lisle is being taken by the more conservative shoppers.

Business on men's half hose has undergone some changes and the popular call today is largely confined to black and white. It is quite a fad for the younger element to wear white socks with tan oxfords. In the better goods, there is a good demand for plain colored half hose with self or contrasting clocks. Some attempts have been made to revise the polka dot, but it is probable that this style will be shortlived, for the reason that it is possible to imitate the polka dot in a low priced printed or extracted stocking. This will, of course, have a tendency to affect the sale of the better grades.

There have been brought out recently, some high colored combinations in silk half hose, these embodying three colors, such as green, red and black; tan, green and red; black, gold and blue.

It is estimated that the spinning spindles of the world now reach the vast total of 104,000,000; there are also about 5,000,000 doubling spindles and dependent machinery, such as looms, calico printing, bleaching, dyeing, etc., machinery.

The exports of jute yarn from the United Kingdom during 1913 amounted to 18,740 tons, valued at $3,905,625, compared with 23,870 tons valued at $4,297,750 in 1912.

THE SCROOPING OF HOSIERY

BY HERTFORD

There have been a number of methods suggested for imparting a scroop or silk-like crunch to dyed hosiery, more especially when this hosiery is made up of mercerized cotton yarns. The scrooping process is carried out as a subsequent operation to that of dyeing, and is in reality a final process of finishing. The methods which have generally been suggested are those involving the use of various organic acids such as acetic, lactic, tartaric and formic. In fact, almost any acid acting on the cotton fiber and allowed to dry will produce a silk-like crunch to the material. In the case of the stronger mineral acids, such as sulphuric, hydrochloric and nitric, the action extends too far and although a very decided silk-like crunch is developed, the cellulose of the fiber is attacked to such an extent as to cause chemical disintegration, resulting in the tendering or complete destruction of the cotton material.

The organic acids mentioned above do not have the same deleterious effect in tendering the cotton fiber, but if used alone they also do not produce sufficient scroop to make the process really worth while. If, however, the organic acids are employed in connection with a soap bath, it has been found possible to produce quite a satisfactory scroop without apparent injury to the strength of the fiber. The cause of the scroop produced on cotton by this action of acids is probably a certain hardening of the surface of the fiber so that when it is bent it produces a crackling or crunching sound. This hardening may be enhanced sometimes by the use of a little glue or starch solution in connection with the acid and soap treatment, though these substances are also liable to stiffen the material. In cases where such a stiffening effect is not desired, their uses would not be possible.

The character of the yarn also has considerable to do with the degree of scroop which can be produced by chemical treatment. Mercerized yarn can be scrooped to a greater degree and with more readiness than

unmercerized. Soft single ply unmercerized yarn can hardly be scrooped at all, whereas hard twisted and lisle unmercerized yarns can be given a fair amount of scroop. The degree of scroop is also influenced by the heat used in the drying of the material. It is well to dry as hot and as quickly as possible, as these conditions will tend to harden the surface of the fiber to a greater degree and thus produce a more pronounced scrooping effect. A number of recipes for cotton, more especially mercerized cotton, have been suggested and the following includes some of these:

(1) The dyed goods are passed through a soap bath containing 1 oz. of hard soap per gallon. The goods should be worked in this soap solution until thoroughly impregnated and at the temperature of about 140° F. The goods are then removed and the excess of liquor is either squeezed out or the goods are placed in a hydroextractor and then without rinsing worked in a second bath containing 2 1/2 ozs. of lactic acid and 3 ozs. of caustic soda per gallon. The goods are worked in this bath for 20 minutes at a temperature of 140° F. and then hydroextracted and dried without rinsing.

(2) The soaping of the material is carried out as above described, but the second bath consists of 1 oz. of formic acid per gallon, the material being worked therein for 20 minutes at the room temperature and then hydroextracted and dried without rinsing.

(3) It is claimed that a permanent and pronounced scroop can be given to cotton by treating the material with a soap bath as above described and then giving a cold bath containing 1 oz. of tartaric acid per gallon, removing the goods after 15 minutes, hydroextracting and drying without rinsing. A greater scrooping effect can be produced if sizing materials are added to the acid bath which may then contain 1 oz. of tartaric acid, 1/6 oz. of glue and 1/5 oz. potato starch. It is said that the effect can be still further enhanced by treating the goods first with 2 to 3 per cent. of tannic acid and 1 to 1 1/2 per cent. of antimony salt and then soaping and treating with tartaric acid as just described.

(4) According to a German Patent 242933, mercerized cottons may be scrooped in the following manner. The goods are first soaped as usual, squeezed out or slightly rinsed, and then treated in one of the following four baths, after which they are wrung out or hydroextracted and dried without rinsing.

(a) 2 1/2 ozs. of lactic acid and 1 oz. of soda ash per gallon.

(b) 1 oz. of lactic acid and 2 ozs. of sodium lactate per gallon.

(c) 3 ozs. of tartaric acid and 2 ozs. of soda ash per gallon.

(d) 1 oz. of tartaric acid and 1/2 oz. of sodium tartrate per gallon.

In case the goods have been dyed with sulphur dyes, it is said that this process not only gives a distinct scroop but also protects the dyed material from subsequent tendering.

(5) Another process which has been suggested for the scrooping of dyed cotton material is to work in successive baths of calcium acetate, soap and acetic acid in the following general manner. Run the goods for 15 minutes at 110° F. in a solution of calcium acetate of 7.9° Tw. Squeeze lightly but do not rinse. Then work for 15 minutes at 120° to 140° F. in a bath containing 40 per cent. of soap on the weight of the goods. Again squeeze lightly or hydroextract and pass into a cold bath containing one part of acetic acid to 10 parts of water. Finally squeeze and dry without rinsing.

(6) Another process which has been suggested is the use of boric acid in the following manner:

One hundred pounds of the cotton goods are worked in a bath containing 16 to 20 pounds of boric acid for 1/2 hour at 70° F. The goods are then hydroextracted and dried without rinsing or the effect can be enhanced by using 2 baths as follows: First, working the material in a solution containing 1 1/2 ozs. of soap per gallon, hydroextracting and second passing into a bath containing 1 1/2 ozs. of boric acid per gallon, then hydroextracting and drying without rinsing.

AN IMPROVED WARPING MACHINE FOR WARP KNITTED FABRICS

Fig. 1 shows an improved machine for warping silk on spools for the Milanese or Travers warp knitting machines. This warper is built at the Saupe Factory, Limbach, Germany, Max Nydegger, 260 West Broadway, New York, being the sole American agent. It is used for warping on spools not only for the well known Saupe machine, shown at Fig. 2, but also for other makes of Milanese machines.

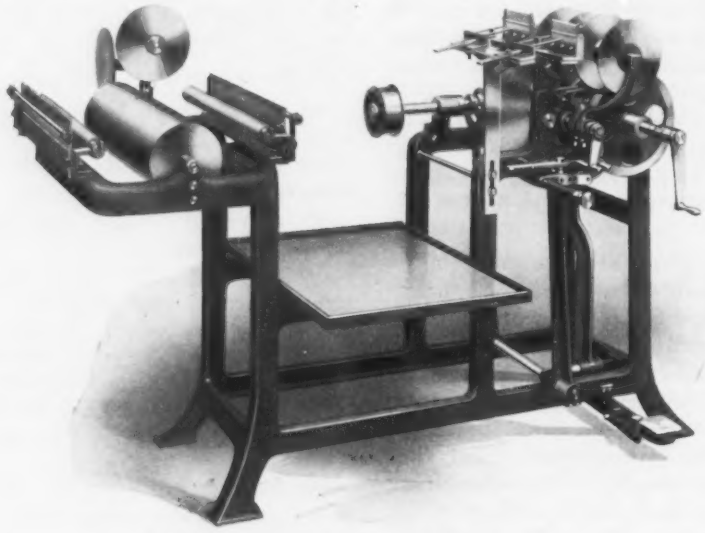


FIG. 1. A MACHINE FOR WARPING SILK ON SPOOLS

The old process consisted in warping twenty-eight independent sections on a large warp mill and then beaming the yarn on brass spools after the arbors had been removed and the spools placed on a long shaft. The new process embodies a number of important advantages; it saves space, doing away entirely with the cumbersome warp mills. Two brass bobbins are warped at the some time. The length is measured accurately and the tension is kept uniform. Much time is saved as no arbors have to be removed from the bobbins. The brass or thread plates are threaded in two operations. There are no heads to be shifted and no overlapping of threads on the warp mill.

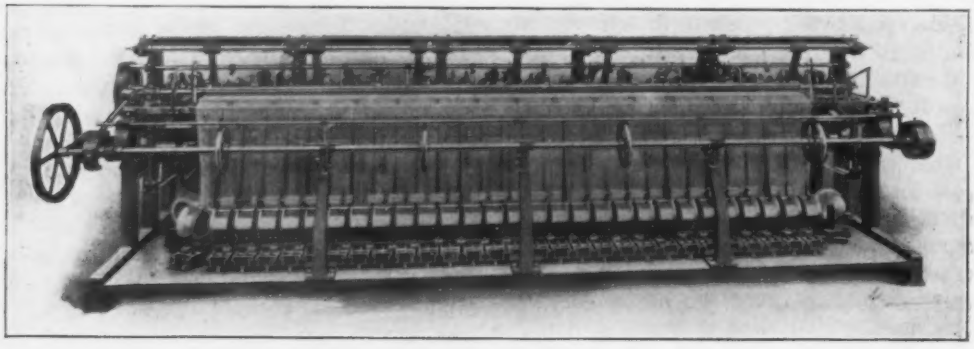


FIG. 2. THE SAUPE MILANESE FRAME OR TRAVERSE WARP LOOM

There is a material saving in the first cost of the installation as well as in the subsequent cost of operating the machine, one girl being able to attend all three hundred to four hundred threads.

The machine is built on a heavy cast iron frame equipped with power drive, friction clutch, quick stopping device, glass rods and highly polished hardened steel rollers for guiding the threads. The measuring device and counting clock has a capacity of 6,000 yards. There is an arrangement for rapid resetting for the start of the machine. Special reed holders are arranged for two complete sets of thread plates and two warp bobbins. Further information can be obtained on application to the American agent.

A CIRCULAR KNITTING MACHINE

The illustrations show an improved knitting machine recently patented and in which movable sinkers or web holders are employed. The improvements relate particularly to that class of knitting machines in which two knitting cams are used to actuate the needles and have a narrowing and widening mechanism.

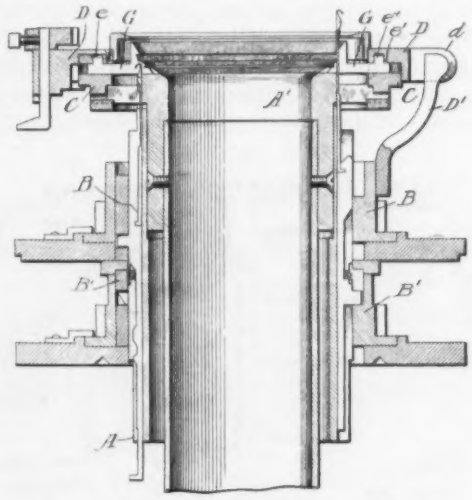


FIG. 1. A TRANSVERSE VERTICAL SECTION

Fig. 1 is a transverse vertical section of the cylinder and connected parts of the machine; Fig. 2 is a view of the under side of the sinker or web holder cam ring; Fig. 3 is a transverse vertical section of the same; Fig. 4 is an enlarged view of the sinker used in the machine. A is the needle cylinder, A' is the movable or adjustable nc sing, B is the upper cam cylinder and B' is the lower cam cylinder. C is the sinker or web holder bed. D is the sinker or web holder cam ring. This cam ring is actuated by the arm, D', secured

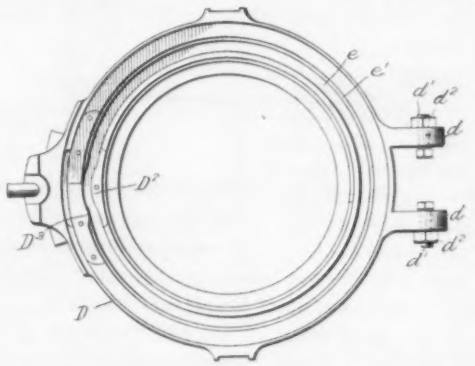


FIG. 2. A VIEW OF THE UNDER SIDE OF THE SINKER

to the upper cam cylinder, B, and extending upward between the two lugs, d, d, on the said cam ring, Fig. 2. These lugs are each provided with threaded bolts, d', d', passing through threaded openings in the lugs, and each is provided with a jam nut, d^2, d^2, to secure the bolts in adjusted position. These bolts and nuts provide for such adjustment as will secure an amount of lost motion between the cam cylinder, B, and the cam ring, if this is found desirable.

One of the objections to the employment of movable web holders or sinkers is that many of such machines will not set up or begin a web, and that on a fault occurring, such as dropping a stitch, the fault will continue until the operator has detected the same and corrected it. The improved construction of movable web holders or sinkers prevents these defects and it is possible to begin knitting a web by simply introducing the yarn or thread into the machine. If a stitch is dropped or a like fault occurs, the machine itself will within a few courses correct the fault and resume correct knitting.

The improved web holder or sinker is shown in Figs. 4 and 5. In these figures, G is the main horizontal body of the sinker and

(g) the vertical portion. The main body is provided with the upwardly extending nib that engages the groove in the cam ring by which the sinkers are moved. The inner end of the main body is provided with the usual recess, g', to engage a ring to hold it from rising. The lower part, g^3, of the inner edge of the vertical portion is so located that the outward movement of the sinker by the cam ring cannot move this portion of the inner

FIG. 3. A TRANSVERSE VERTICAL SECTION OF THE SINKER

edge quite to the circle of the exterior of the needles in the needle cylinder, or in other words, not quite to the outer side of the needles between which it is located.

This inner edge of the vertical portion of the sinker extends upward a short distance in a straight or vertical line, as at g^3, and then inclines or curves outwardly and upwardly, as at g^2, until it meets the inner end of the lower edge, g^4, of the hook of the sinker, forming an acute angular recess beneath the hook. The lower edge, g^1, of the hook extends inwardly toward the center of the needle cylinder a short distance beyond

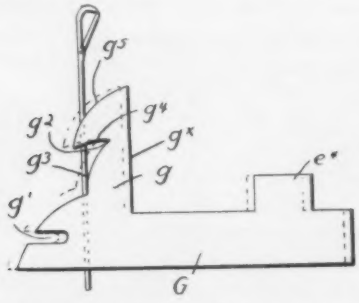


FIG. 4. AN ENLARGED VIEW OF THE SINKER

the vertical plane of the lower portion, g^3, of the inner edge when it meets the upper curved edge, g^5, of the hook which extends therefrom to the upper end of the exterior edge of the vertical portion, g.

In starting a web the thread or yarn is laid by the thread-guide on the upper surface, g^5, of the hook, and against the latches of the needles.

THE MANUFACTURE OF BOYS' SWEATER COATS

BY CARDIGAN

Boys' sweater coats have proved to be a rather staple article and are causing manufacturers to pay more attention to this branch of manufacturing. Some very attractive and novel styles have been on the market this past season and most of them

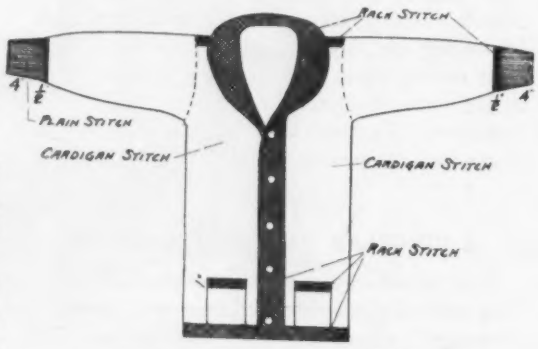
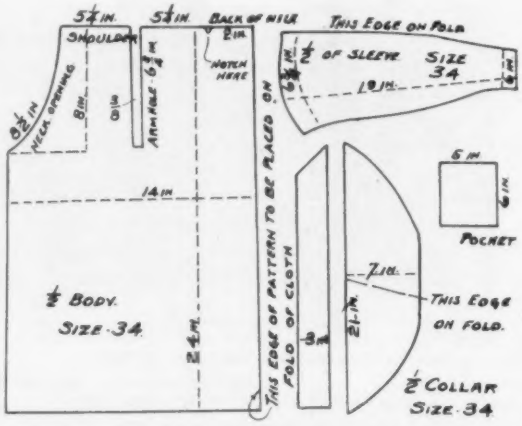


FIG. 1. THE SHAWL COLLAR SWEATER

have proved big sellers. As a general rule these coats have sold to the trade for about $3 to $6 per dozen and were made with all cotton or with a cotton back and a worsted front. Although most of the boys' coats



PATTERN FOR SWEATER COAT SHOWN AT FIG. 1

were of a cheap variety, some manufacturers have placed them on the market made of all worsted and selling for as high as $14 a dozen.

The majority of boys' coats were made with patch pockets in navy blue, oxford grey, maroon and some in cardinal and tan. The buttons were usually white or smoked pearl, although some manufacturers used buttons the same color as the coats. Circular as well as flat machines were used in making these garments and as a rule, automatic machines were used. The following

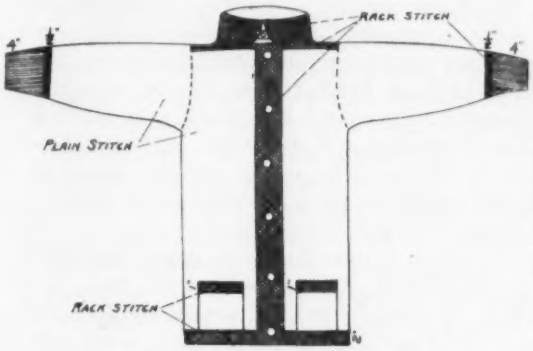


FIG. 2. SWEATER WITH BYRON COLLAR

styles have proved to be very good sellers: The shawl collar, the byron collar, the norfolk with a byron collar and the plain coat with no collar. The shawl collar is undoubtedly the most popular and is shown at Fig. 1. This shows the garment when finished

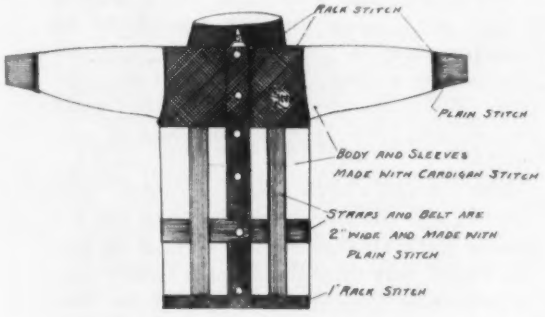
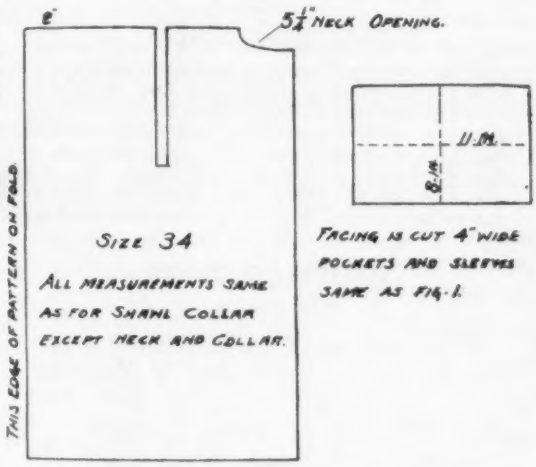

RACK STITCH
PLAIN STITCH
BODY AND SLEEVES MADE WITH CARDIGAN STITCH
STRAPS AND BELT ARE 2" WIDE AND MADE WITH PLAIN STITCH
RACK STITCH

FIG. 3. THE NORFOLK STYLE SWEATER WITH BYRON COLLAR

and the patterns used in making the different parts. After cutting, the first operation is the seaming of the shoulders, then the making of the sleeves and sewing them in, the sewing on of the facing and last the sewing on of the collar. The coat is now ready for the buttonholes, buttons and pockets.

Fig. 2 shows a byron collar with measurements, kind of stitch and patterns used. This coat is finished about the same as the one shown at Fig. 1 with the exception that it has six buttons instead of five and has a flap and button on the collar. Fig. 3 shows


5½" NECK OPENING.
THIS EDGE OF PATTERN ON FOLD.
SIZE 34
ALL MEASUREMENTS SAME AS FOR SHAWL COLLAR EXCEPT NECK AND COLLAR.
FACING IS CUT 4" WIDE POCKETS AND SLEEVES SAME AS FIG. 1.

PATTERN FOR SWEATER SHOWN AT FIGURE 2

the norfolk style with a byron collar. This coat is cut the same as the one shown at Fig. 2, all alterations being made in the knitting and the finishing. The belt and straps are usually made on a flat machine as this

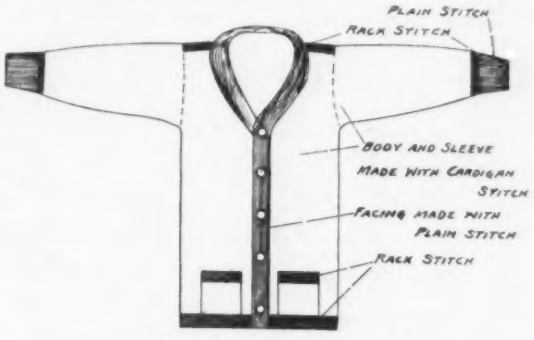


FIG. 4. THE PLAIN COAT SWEATER

gives a finished edge on each side. The straps are sewed from the edge of the rack stitch on the shoulders down to the bottom, as shown in the illustration, leaving an opening large enough for the belt to go through.

The plain coat is made as shown at Fig. 4. This garment is probably the poorest seller of all and has almost been abandoned. The facing is usually made on a flat machine

and is sewed on by a binding machine, especially built for this purpose. There are a number of other styles, but most of them are variations of the ones shown and made on the same order.

MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay, of course, for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

KNITTING MEMOIRS

BY CYMBAL

Some years ago I took charge of a knitting mill in the western part of Massachusetts. In the knitting room there were about fifty knitting frames crowded in a small place hardly large enough for half the number. Among the frames were some flat rib and German flat bed machines. Some of these frames seemed to be making lace curtains, there were so many holes in the fabric. The circular rib machines were in better order, but they went very slow, which probably accounted for the good work. There had been several boss knitters in a short space of time, but it seemed that none of them had had experience so they did more harm than good. The super said he wanted the flat frames started first and I found it to be quite a difficult proposition, for they had been filed and ground until all the wearing parts had lost their original shape.

The first frame I started on would load up in spots, making a lumpy web full of small holes. I stood there turning the frame by hand, not knowing where to make the start, as every place seemed to be out of order. I had not worked on a frame of this kind for many years. This particular frame had the front bar cam ground away on the highest spot, so that the front needles would not cast off clear. The slide was also filed away, which made it sag more on one side than on the other. Among other things the cam bar on top was loose in the gears, giving too much play, and allowing it to jerk backward at the end of each course. One cam was longer than its mate, showing in the streaked cloth. The yarn carrier was cut and marked so much that it was practically useless. There were no new parts in the mill. Having ordered what I thought was needed, I took from one frame to start another, until there were several going, but not to my satisfaction, as they made a few holes. Looking around for the cause I discovered that there were two kinds of needles in the front bar, some were a 24 gauge and the others were, I supposed, 24 gauge with a 42 hook. I never found out just what they were, but the 42 hook needles were shorter than the regular 24, pulling a longer stitch, or pulling the yarn apart as it might be. This difficulty was overcome by using all one make of needle and we got good work from the few frames that were running.

Being in a hurry for some sizes, I speeded up some of the frames, as they had been run in a slow, lazy way. This worked all right on good yarn, but the poor yarn would not run.

There were many styles of tension pads, too many in fact for so few frames. I thought it would be a good plan to have them all alike, which would result in all the yarn having the same tension, giving an even looking fabric. Under the old system a heavy felt pad would be on a plating thread; or opposite the thread would be an ordinary piece of thin knit goods; any old way as long as there was some sort of a tension. When the new parts came they were put in and the frame ran without any trouble.

The circular latch needle frames next claimed my attention, now that the flat rib frames were all running. I started on one and found that they were not in much better condition than the first lot. Every cylinder and dial was gummed up with a cheap grade of vaseline. These dials and cylinders I cleaned by first punching out the slots of lint that had collected and hardened back of the needles. This took some time as a hammer and slot spreader had to be used to start the lint. When the slots were clean a stiff brush and coal oil was used to finish, as this would take out or wash out anything that might be left. When the dial and cylinder was back in the frame I looked over the cams, ground out low spots, or touched

them up where needed. I built up the bed plate after carefully going over each part. The cams always claim the most attention. Uneven, nicked or worn cams are of little use and great care should be taken to keep the cams in their original shape when grinding.

I next examined the yarn carriers or guides, as they are sometimes called. These should be perfectly smooth at all points in order not to bend or break the latches. Of late years almost all yarn carriers are hardened and do not cut or show scratches after a bad smash. They are so hard in fact that continuous wear of the needles at any certain point will not show after many months. When ready for the needles the frame should turn easy, and there should be no high spots on the cylinder. Before setting the needles back in the frame I inspected them for rough latches, bad rivets or other imperfections. When this frame was ready to start, I oiled it thoroughly, squirting oil in the needles as the frame was running, washing out all the dirt and grit. The oil streaks would appear for some distance, but this was overcome later. This method saves wear and waste, and can be used daily. The oil streaks will show only for about a yard of the fabric.

There has always been much trouble and expense caused by the inside thread of a plating carrier jumping out and running around the dial needles, filling the cams with waste. This loss was stopped by having the inside thread hole put in a different place. I had everything going nicely inside of three months and was looking around for improvements. I wanted to stop the oil spots on the flat frames. This was considered almost impossible if the frames were to be oiled regularly. I had experimented with various devices when I finally hit the right one. This consisted of a sheet of tin that fitted over the cloth and was soldered to some strips of tin that held to the side frames. This tin was fitted close around the cross bars, the front end turning up slightly to let the oil run from one side. Holes were cut from the take-up belt, chain and springs. These holes were cut square, with the edges turned up and soldered in the corners to prevent the oil from dripping through. I have no doubt but that we saved at least 5 per cent. of our seconds by this device.

We were winding about all the yarn used for the reason that the stop motions were not in working order and as that was the case, bobbins or cones would all be the same. I got after these stop motions and in a short time had each working perfectly, and we began to use the yarn from cones. We were in need of more help in the finishing room, so I put about all the frames on cones and gave the girls another job. When I first went to work in the mill there were about twelve girl winders, now I have but two, one to wind pieces as they come from the frames, the other to wind fine numbers of worsted that we cannot get on cones. We have no trouble whatever with our stop motions, as I regulate them for various sizes of yarn. Some mill men do not realize that the same tension that would pull down a No. 10 yarn would break a No. 40 and run the cloth from the needles. I discovered that all the tension springs were set too hard, even for a No. 20 yarn. There had been no attempt to regulate the tension, some of the triggers being worn and the tin discs bent. I remedied all this and now everything is in working order.

I took the needles out of other frames that had been running for some time and inserted them, but they made nothing but a string of holes. I sent 2,000 of these needles back to the maker with instructions to smooth them off perfectly or they would be sent back again. This took a long time, but when I put the needles back in the frame, they ran fairly well. Most of the needles taken out had a sharp edge to the spoon of the latch, but a top with a small wrench would sometimes flatten this spoon and the needles would run all right. I had other troubles with this 14 cut frame aside from the needles. The dial stitch had to be pulled back much further to cast off, otherwise it would leave tuck stitches showing in places. The cause was no doubt the closeness of the needles and filling the gauge entirely. The stitch almost held themselves up and as a result we had to pull down with the take-up harder, in this way getting a few holes, but we soon overcame this difficulty.

Dyeing, Bleaching, Finishing, Etc.

THE FINISHING OF LINEN HUCKABUCK TOWELS

BY CROFTER

Few fabrics require to the same degree, that full, firm, but supple finish or handle which must be imparted to huck toweling so that while improved in luster, it still retains to the maximum degree its cool softness and absorbent qualities. The Irish bleacher and finisher and more particularly one or two well known firms, are renowned for the perfection of the finish imparted to this class of goods. For cloth bleached in the piece, the "old bleach" method as distinct from the new "house method" undoubtedly produces a softer, fuller feel in the finished goods.

The distinguishing and important feature of this system of bleaching is "crofting". This is a tedious process, consisting in exposing the cloth to the action of the atmosphere for two or three days at a time upon the grass of the bleach field. The crofting is repeated at frequent intervals, about half the time employed in bleaching being devoted to it. Between each crofting or grassing the cloth is "bucked" or boiled in alkaline lye or in slaked lime first and alkaline lye afterwards, in large iron pots or boiling kiers for eight or ten hours at a time. "Scouring" or steeping the cloth in water mixed with sulphuric acid in the proportion of 8 gallons of the latter to 200 of the former, is also resorted to. Besides whitening the cloth, the sour removes the lime and alkali. The cloth is allowed to remain in the sour for about ten hours. As the acid is most injurious if allowed to remain in the cloth, every trace of it must be removed by very careful washing. As many as twenty-two operations, or including the intermediate washings, forty-four operations have been employed to obtain the best results, thirty-one days being required to complete the process, thirteen of these being devoted to crofting.

For grassing, a level field, facing the south should, if possible, be chosen. It is of the utmost importance that the piece be well spread and the selvage kept well out without being curled up. Put pins in at each end of the web and four rows of cross pins. If the day promises to be very hot, the cloth should be lifted before the dew rises from it. In dry climates it should be watered regularly. In windy weather the pins should be taken out lest the cloth be torn.

If cloth grassed in the winter is frozen stiff, it should not be lifted when in that condition for if doubled up it will crack and cut. One man should be able to spread one hundred and fifty double pieces in a day or lift double that quantity in the same time.

There are two methods used for finishing the bleached cloth, beetling and mangling. Yarn bleached cloth is generally mangled, and piece bleached cloth is beetled, similar results being obtained in either case. Both processes bring out the width of the cloth. As they generate heat, the cloth is first damped. One or two finishing materials are frequently used to strengthen the cloth and give a full, firm and supple feel or handle to the fabric. Such filling improves the luster obtained by beetling or mangling. This is brought about by replacing on the fiber the neutral pectic matter which is unavoidably removed in bleaching. Gum tragasol and Irish moss are used for this purpose. Both are reduced to mucilage by digesting with boiling water and then added to the damping water. Other agents sometimes used are glycerine and tallow. Glycerine gives suppleness and softness to the fabric owing to its viscosity and power of absorbing moisture from the atmosphere.

For both beetling and mangling, the dampened cloth must first be beamed hard and rolled tight on an iron or wooden roller. The cloth must be smoothly wrapped upon the beam, no creases being permissible or the cloth will be cut at the crease. Since beetling increases the width of the cloth, a

space of say 6 inches should be left between each batch upon the beam. In the beetling engine about forty wooden stocks fall upon the cloth as it is slowly revolved with the beam placed in the frame beneath. The stocks or beetles are lifted and then allowed to fall by pieces of wood or tappets which project from a revolving shaft placed behind the machine and engage with corresponding pieces on the stocks. These tappets raise the fallers a short distance and then allow them to fall upon the cloth. The tappets are keyed upon their shaft in such a way that the fallers fall one after the other and not all at once. The faller ends must have a smooth, round face.

The cloth beams should be cast on end to ensure clean castings and freedom from damaged cloth. The beams are given a very slow end motion so that every part of the cloth receives a like amount of work. After a first beetling, which may occupy forty minutes, the cloth should be run off, turned over and rebeamed and beetled again for another hour. If damp it should be more loosely wound upon the roller than if dry. The winding on and off motions should be separately driven, to enable the winding on and stripping off of the cloth to be proceeded with when the beetle is at rest. The winding on and off should be done by means of friction plates.

The beetling of linen smooths and levels the fabric and gives it a gloss. The threads of both warp and weft are flattened out and the interstices filled up naturally. In mangling, the cloth roller is called the pin and is placed between heavy stone or metal rollers to which pressure is applied by means of levers or hydraulic means. Between and with these rollers the cloth revolves for about a quarter of an hour, being subjected to a continuous pressure. While in the machine the direction of rotation is changed repeatedly. The surface speed of the rollers is about fifty feet per minute. The pieces should be short and after being turned end for end mangled again. When a change of beam is required the top mangling roller is raised clear of the cloth. The mangle pin should be positively driven when stripping. Mangling gives a full, soft and mellow finish or handle to the towel.

DYEING OF COTTON AND SILK AND COTTON AND ARTIFICIAL SILK HOSIERY

BY KASHGAR

Artificial silk has gained a strong foothold in the manufacture of certain kinds of hosiery, especially such as is moderate in price, and made to meet a demand for something that is not expected to last too long. Cotton, plain or mercerized, and real silk, are also employed to a very large extent in the manufacture of a similar line of goods, but which, owing to the greater cost of the real silk, commands a somewhat higher price.

In the dyeing of these two classes of hosiery, it was formerly the safest plan to dye up each fiber to shade separately, and then knit the article, but the general custom now is to dye the stockings in bulk, and to control the dyeing operation in such a way that the various dyes used will go on the two different fibers at the same rate, thus giving the same shade.

DYEING COTTON AND REAL SILK MIXTURES

The stockings are generally made of real silk in the leg, but with mercerized cotton top, heel and toe. The silk is in the raw state and must be degummed in the usual manner with two soap baths, followed by a good rinse. The degumming is best done in bags, although some dyers prefer to carry out the operation in either the revolving stocking dyeing machine or loose in the tub. This latter method is not the best one to follow as there is, as a result, a number of stockings that are "seconds."

The best type of machine for dyeing these stockings is difficult to recommend, but perhaps the revolving cage machine is the one most frequently found in such dye houses. The choice of dyes is generally confined to either the substantive dyes—those dyeing cotton without any mordant—either alone or, as is commonly done, in combination with dyes of the acid group.

For certain shades it is found that the silk does not dye as full as the cotton, and the dyer is required to add some acid colors to bring up the shade of the silk to match that of the cotton. The process is to add to the dye bath the approximate amount of substantive dyestuffs necessary to give the depth of shade desired, and add about 20 pounds of crystal Glauber's salt, and dye for

about one hour under the boil—usually 3/4 hour at 190° F. is sufficient. During the dyeing note how the silk is coming up, and as it takes the substantive dyes less than the cotton, add a very small quantity of some acid color of the same shade as the cotton dye.

After the two fibers are about the same depth, complete the dyeing by adding 10 pounds of acetate of ammonia in crystals, then raise the temperature to 210° F., and continue the dyeing for 20 minutes longer. As a rule, the cotton and silk will be satisfactorily dyed if the dyer's choice of colors was judicious. Do not add the acetate of ammonia until the second half of the operation, and always bring the temperature afterwards to near the boil.

Certain modifications of the dyeing process are necessary for particular shades. A royal blue, for instance, is best dyed with the methylene blues, of which there are many good makes on the market. The stockings are immersed for 5 hours in as small a volume of bath as convenient, heated to 100° F., and containing 6 per cent. of tannic acid (on the weight of the stockings), then squeeze and pass through a cold bath containing half as much antimony as of Tannic acid. Afterwards wash and dye. It is to be noted that the higher the temperature of the tannic acid bath, the deeper will be the shade of the silk, while if the temperature be allowed to go down, the cotton will show up deeper.

The dye bath is made up with about 1 3/4 lbs. of an ordinary good type of methylene blue, the dyeing being done with a small amount of acetic acid, not allowing the temperature to exceed 140° F.

The fashionable shade of emerald green on cotton and silk stockings is dyed exactly as for the royal blue, but dyeing before mordanting with a bright acid green shaded with a pinch of Indian yellow, then wash and mordant as previously described. Afterwards again dye at 110° F., but using basic dyes to produce the shade, usually a mixture of brilliant green crystal—a most common dye, and a basic yellow.

DYEING COTTON AND ARTIFICIAL SILK

The process for dyeing this combination of fiber is not complicated. The dyes most generally employed being of the substantive group, but as artificial silk has a strong affinity for many of this class of dyes, they should be selected only after trial, and to adjust the dyeing process to reduce this dyeing affinity.

The dyeing temperature should be kept as low as possible, 140° F. being sufficiently high. As the exhaustion of the dye baths is incomplete, it is necessary to work with a pretty strong dye liquor, but this does not mean that strength is to be given by large additions of common salt, which would only tend to "salt-out" color at the expense of the dyeing.

As a rule, 10 per cent. of Glauber's salt is sufficient, with 1/2 to 1 per cent. of soda ash and 3 to 4 per cent. of turkey red oil. Commence dyeing at 75° F., and gradually increase the heat to 140° F.

A peculiar condition is often experienced in dyeing full, heavy shades—the artificial silk taking up the color too strongly. To guard against this it is found an advantage to prepare the stockings by soaking for several hours in a tannic acid bath containing 10 to 12 per cent. of tannic acid, heated to 150° F., then transfer the goods to a bath containing 7 1/2 per cent. of tin crystals dissolved with the aid of a little muriatic acid, and finally rinse well. By this treatment the artificial silk is made to lose some of its affinity for the dyes, and the tendency for evenly colored stockings materially increased.

In San Paulo, Brazil, there are 52 textile factories, 31 devoted to cotton manufacturing, 17 to wool and 4 to jute.

The London Board of Trade returns for April show exports of worsted yarns to the United States of 172,000 pounds, compared with 8,800 pounds a year ago; woolen, 464,000 yards against 116,000 a year ago; worsteds, 2,031,000 yards, compared with 705,000 a year ago.

A MACHINE FOR CHROMING ANILINE BLACK

From Gesterreich's Woolen Leinen Industrie
Translated from the German by the Editor of the Textile World Record.

Fig. 1 is a sectional view of a German machine for chroming aniline black goods. It consists of four sections, I, II, III and IV, arranged in step form, a^1, a^2, a^3 and a^4. The squeeze rolls, b^1, b^2, b^3 and b^4 and the air chambers, c^1, c^2, c^3 and c^4. The goods to be chromed enter at the front part passing

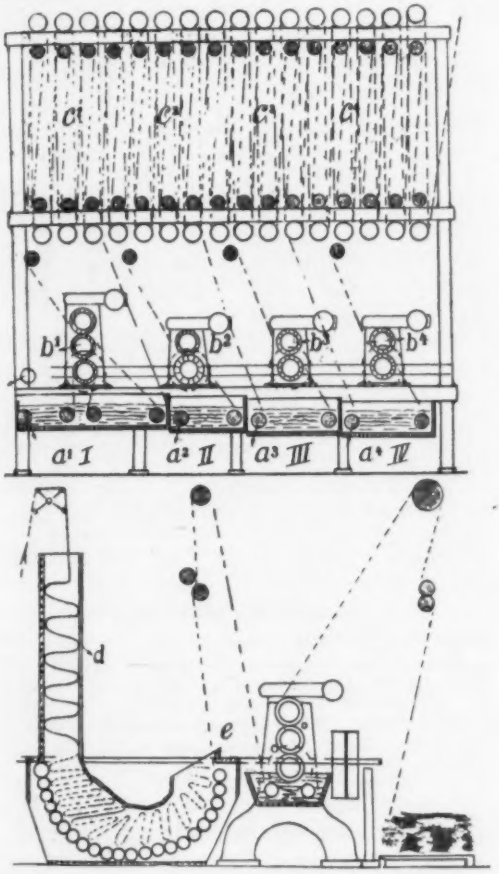


FIG. 1. A GERMAN MACHINE FOR CHROMING ANILINE BLACK GOODS

through the tank, a^1, where they are saturated with the liquor, and then between squeeze rolls, b^1, return to the bath, a^1, carried through the squeeze rolls, b^1, and then enter the air chamber, c^1, where they pass over a series of carrier rollers. From this chamber the goods pass through the liquor in the tank, a^2, are run between squeeze rollers, b^2, pass to the air chamber, c^2, and in this manner pass successively through the other sections, III and IV, of the machine. The chrome solution, which is exhausted in the various air chambers is renewed in the baths. The goods are squeezed only enough to prevent dripping of the liquor, thus carrying as large a quantity as possible of oxidizing solution to the next air chamber. After the cloth leaves the last air chamber it is either carried to the receptacle, d, or delivered direct to the padding machine, e. Additional sections can be added to the machine if desired in order to increase the production.

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FINISHING TEXTILES WITH SOAPY PREPARATIONS

A Swiss process for finishing cloths with a soap solution has recently been patented in this country, the improvement being designed to prevent the goods turning yellow or giving out a bad odor. Pure ammonium stearate or palmitate is substituted for the soaps ordinarily used. To the ammonium stearate or palmitate can be added appropriate bodies capable of increasing the purity of the fabric or of its white parts and to impart more gloss to the goods, as for instance boric acid, perboric acid, borates, perborates and other persalts or peroxids, or bodies which are capable of increasing the suppleness of the fabric, but do not reduce its whiteness and do not impart a bad smell, as do as for instance vaseline and white mineral oil, palmitine, etc. Ammonium stearate or palmitate insure also the vividness and uniformity of the shade when it is employed to finish or dress fabrics light dyed with shading dyestuffs or vat dyestuffs, as ultramarine, smalt, substantive dyes or vat dyestuffs, since in these cases the fabrics are not subjected to a change of coloration by the soap.

I am aware of the fact that a solution of ammonium oleate has already been proposed for washing purposes in order to strengthen

the goods and to lend them a lustrous appearance. The object of the new process is to prevent white or bleached fabrics, particularly of vegetable fibers, as cotton or linen fabrics, from turning yellow in consequence of the decomposition of the soap employed for softening. This result cannot be obtained with every one of the ammonium salts of fatty acids, but is only obtainable with ammonium stearate or palmitate.

Common oils have been added to the soap solutions employed for treating clothes containing cotton, but such addition of a common oil containing oleic acid promotes the yellow coloration of the goods and is by no means an equivalent of vaseline, white mineral oil, etc., employed in the present invention and which do not contain oleic acid. Boric acid has already been added to organic finishing agents in order to prevent their putrefaction on the fibers and to affect the weight and handle of the goods. According to the present invention perborate and other persalts, boric acid, etc., are added to the finishing agent in order to increase the purity of the fabrics or of their white parts and to impart more gloss.

BLEACHING NAPPED GOODS

Editor Textile World Record:

Enclosed is sample of knit goods marked 1, which is satisfactory in every way. Sample 2 is cut from the same roll as No. 1 and is a dark color. Sample 3 is the same cloth as No. 1 and No. 2, as it comes to me to be bleached. We are having considerable trouble in uneven goods, and this uneveness in the same roll makes matching up almost impossible. This uneveness is much more pronounced from the lower part of kier, the first half from top down is quite uniform. We place the cloth in the kier dry, using 2 1/2 per cent. caustic soda, 2 1/2 per cent. soda ash. The caustic soda is 74 per cent. and the soda ash is 58 per cent. Boil for 10 hours under 15 lbs. pressure, rinse with hot and then with cold water, and bleach the usual way with the lime bleach. Can you suggest something that will overcome this trouble and do it in one operation, that is, with one boil and one bleaching?

Maxwell (2241).

"Maxwell's" whole trouble is caused by the goods being underbleached. The formula is all right. The fact that the goods in the top of the kier are of an even color is proof of this. A kier boils from the top downward. To increase the quantity of chemicals would tender the cloth and have no effect on the bottom portion of the kier. Another fault with "Maxwell's" method is putting the goods in the kier dry. Goods do not boil as well or as quickly when put in the kier dry as they do when put in wet, for the simple reason that the liquor has to be forced into the cloth before they are saturated, the top portion of the kier starting to boil before the bottom portion is warmed through. Grey cloth is greasy and full of dirt and oil, even if it is only from the cotton, independent of the oil and grease used in the sizing. This has to be loosened before the liquor can act on the cotton itself. If "Maxwell" will give his goods a warm steep before putting them in the kier the trouble will in all probability be overcome. If they cannot be given a warm steep before being put in the kier do not put them in dry, but saturate them with cold water. It is surprising how long it takes to wet a roll through to the center. I would advise using the following method:

Put the material in the kier wet, steeped for two or three hours in warm water, if possible, as this helps to loosen up the dirt. Then put into the kier with the same amount of drugs as formerly used, boil 12 hours at 15 to 20 pounds' pressure. If this method is followed closely I am quite sure good results will follow.

Delco.

BLEACHING LINTERS

Editor Textile World Record:

Your name has been referred to us by the Department of Commerce as being able to give us information as to the process of bleaching cotton linters. We are manufacturers of cotton and cotton linter mattresses and would like very much to get this information. Hanyan (2315).

We published extensive replies to the question regarding the bleaching of linters in our October and December, 1912 issues, to which "Hanyan" is referred.

The total production of the Swiss silk mills decreased considerably during 1912, the total production amounting to 46,500,000 yards, or 7 1/2 per cent. less than in 1910 and 15 per cent. less than in 1908.

SHODDY AND CARBONIZED WASTE

Louis Joseph Matos, Chemical Engineer

A Paper read before the American Institute of Chemical Engineers, Troy, N. Y., June 17th, 1914)

There have been proposed from time to time numerous processes for the destruction and removal of vegetable particles from wool in all stages of manufacture, from the burrs, seeds and other plant fragments found normally in most all raw wools; from the fine particles of cotton or other threads that are picked up during the travels of pure wool through the mill, and which show distinctly in piece dyed goods when finished and which calls for the process of speck dyeing, and which in the better grade fabrics calls for carbonizing in the piece, and finally the process of rag carbonizing.

The importance of this industry may be appreciated when it is realized that if all the wool clipped during any one year be converted into cloth suitable for garments, and equally distributed among the inhabitants of the temperate or wool wearing zones, there would be but fourteen ounces of cloth to each individual, sufficient to make only a single pair of knee breeches per person. In order to provide a sufficient supply, wool must be obtained from another source and this source is, of necessity, previously made and used woolen cloth.

The various kinds of stock that serve as raw material for the manufacture of shoddy and similar products are subject to several classifications based upon whether the rags are new, that is, rags and clippings obtained from clothing manufacturing establishments; old stock, which is rags obtained from previously worn clothing; and "wool waste" which, as its name indicates, may be regarded as the waste and sweepings from woolen mills. All these three groups are classified about as follows:

"NEW CLIPS"

Clips: Factory wool; fine mixed; fine merchants tailor; coarse grey; ordinary light; fine dark. Worsteds: Choice light; fine gray; fine dark; black; blue; brown.

Serges: Brown; blue; black; light dark. Light fancies, dark fancies. Worsted edges: Blue; black. Flannels: New blue; new scarlet. Plain black kerseys. Unions: New; dark; ordinary. Mixed cloakings.

"Old Stock"

Soft woolens, best, coarse. Red flannels; white softs; Merinos, fine light; fine dark; coarse dark; fine black; soft woolens, old blue flannels; thibets; serge, black; brown; green; small skirted, blue skirted. Knit stock, red; brown. Knit, blue; black, dressed. Knit stock, white; light gray underwear; coarse gray; steel gray. Cloth, rough; tan; fine brown; coarse brown; skirted, small; dark; black; light; blue; mixed; worsted, light; blue; black; dark. Carpet, soft backs; linseys. Felt and wool hats; white linsey flannel; Satinet garments; mixed satinets; seams, mixed; Delaine, skirted.

"Wool Waste"

Colors, strictly all wool Delaine, extract, dark; light; Black, blue; brown and fancy colors. Black serge; blue serge. Ring waste, fine foreign; fine domestic; coarse foreign; domestic. Noils, fine 1/2 blood; 3/8 blood; 1/4 blood; French combed; carpet; Hard ends, white worsted, colored worsted. Yarn waste, colored (all wool) woolen; white (woolen); colored (woolen); colored (cotton mixed); white carpet. Card waste, 1/4 blood; 3/8 blood; white woolen; colored. Burr waste, white; colored. Pill stock, white.

The operations necessary to convert apparently useless rags into a merchantable and useful fiber, requires that they be subjected to the action of disintegrating machines, which pull the rags apart and break them up more by a tearing and shredding operation than by cutting, whereby the threads that composed the original rags are unraveled into their constituent fibers. Under the broad term "regenerated wool" is to be included all those forms of wool that have been recovered from rags and cloth clippings.

When this disintegrating operation is carried out with soft rags, such as knit goods, flannels, shawls, etc., and the waste incident to their manufacture, the result is broadly termed shoddy, the fibers being relatively long, averaging from 2/5 to 1 1/4 inches. On the other hand, where the rags are from originally heavily fulled woolen fabrics or other classes of hard rags, the resulting fiber is termed "mungo," the fibers of which are short, owing to their breaking. The length of "mungo" varies from 1/5 to 3/4 of an inch. It is rarely used alone for yarns, but generally with new wool or cotton. Extract wool is a regenerated wool fiber that has been freed from vegetable matters.

As is apparent, there must be present in

the rags at times certain varying amounts of cotton threads or admixed cotton, the former due to the stitching of seams, etc., while the latter is due to cotton in the cloth in the form of warp threads or loose cotton mixed with wool to make a so-called "merino" yarn. In the manufacture of regenerated wool, it is necessary to make use of some chemical process that will destroy the cotton present in the rags without appreciable effect on the wool. This process is called "carbonizing" and the regenerated wool fiber obtained is called "carbonized stock" or "extract." The carbonizing process dates from 1851 and is the reverse of the well known reaction of caustic alkali on mixtures of wool and cotton, whereby the wool is dissolved leaving the cotton intact.

It is recorded that a certain Captain Corbett, visiting the London Exposition in 1851 was attracted by the caustic boiling process as applied to treating cotton rags for the purpose of freeing them of wool fibers, thereby fitting them better for the use of the paper maker. He regarded wool as being the more valuable fiber to recover, and devised the process of treating woolen rags with weak acid to destroy the cotton. He started an extract plant at Mitcham, in Surry, but his output attracted little attention in Yorkshire, as the local makers of woolens believed that the fiber would not "felt" or "full" properly, having lost its milling qualities.

Independent of the work of Captain Corbett, Kober, a German, and Isard and Leloup, Frenchmen, publicly used the acid carbonizing process about 1854 in their respective countries, since which time there have been introduced by various inventors between thirty and forty modifications involving chiefly mechanical appliances. It is curious to note that all the methods actually referred to in these modifications have been based upon the rise of an acid reaction.

The chemical reaction forming the basis of the carbonizing process is very simple and is as follows:

$$C_6 H_{10} O_5 = 5 H_2O + 6 C$$

The particular results aimed at by the shoddy carbonizer are briefly summed up in the following figures, based upon many trials made with cotton in the presence of wool and under varying conditions.

At 140°-145° F. the cotton becomes brittle and it is in this condition that the shoddy maker desires to have it. When the temperature is maintained at about 145° F. there is little or no danger of the acid injuring the wool fiber. Between 150°-160° F. the cotton fiber browns distinctly, but an incipient injury is done to the wool. Between 165°-170° F. the cotton is actually carbonized, that is, actually becomes black. The term "carbonize" is used in this particular sentence from a chemical and not from the shoddy maker's viewpoint. With acid ranging from 2 to 3 per cent. strength, the wool fiber is left undamaged after heating for one hour at 140° F., while the cotton under the same condition is made brittle and thereby easily removable by beating out in the willowing machine.

The most commonly employed process consists of immersing the rags in huge tanks containing a weak solution of sulphuric acid, and ranging in strength from 2 to 4 per cent., or in the language of the dyer, 2 1/2° Tw. to 5 1/2° Tw. After having been allowed to soak for several hours, the rags are removed from the tank and drained, the excess of acid removed by means of a centrifugal, being returned to the tank for further use.

The rags are then put through a drying oven and baked at a temperature of about 145° F., so that the cotton or other vegetable fiber present is completely destroyed. As many of the rags subjected to this process are previously dyed, the action of the combined acid and high temperature is in some instances likely to affect the colors, which causes the resulting "shoddy" to fall into its own particular commercial class as to color. On the other hand, the manufacturer of shoddy and extracts is often called upon by the woolen manufacturer to supply a particular grade of shoddy dyed a special shade and possessing certain properties, such for instance as fastness to severe milling. In consequence the shoddy dyer must use the same kind of dyes that the dyer of pure scoured wool must employ when equally high standards are set.

In cases where the color on the original rags of a given grade is not suitable, the shoddy manufacturer must remove or reduce it to such a point that they can be dyed to match the given shade. This color-removal process is called "stripping" and is accomplished by means of soda, or with bichromate of potash, oil of vitriol and oxalic acid, or with hyraldite, a zinc-formic sulphite compound which chemically destroys many of the dyes used for wool. These several processes are used according to the nature of the original dye.

(a) Stripping with soda: This is usually adopted for colored rags. Fragments of ladies' dresses (bodices, jerseys, etc.) usually form the bulk of such rags, and thus have been usually dyed with acid colors, which may be removed for the greater part by a fairly strong treatment with soda. All shoddy material ought to be submitted to this treatment for removing colors of poor or only moderate fastness to milling. Treat the goods for about 1/2 hour at 110°-120° F. with 5 to 10 per cent. soda ash. Rinse thoroughly and dye.

(b) Stripping with bichrome, sulphuric acid and oxalic acid: This method is frequently used for dark-colored material which is not stripped sufficiently by soda. Indigo and wood colors especially are stripped by this treatment, and alizarine colors are sometimes converted into shades that may be more easily over-dyed. Boil for 1/2 to 3/4 hour with:

3 to 6% bichrome,
6 to 12% sulphuric acid and
3 to 6% oxalic acid.

Rinse well and dye.

It is well to commence dyeing material thus stripped without the addition of acid. For dyeing medium and full shades, with chrome colors one-half the quantity of bichrome required for the after-chroming method or for the chromate method is sufficient, while the addition of bichrome may be entirely omitted for light shades.

(c) Stripping with hyraldite: Hyraldite is one of the most important stripping agents for shoddy. It does not affect the fiber in the least, and destroys most acid colors as well as a great many chrome colors, so that very light-colored goods as a rule may be produced from very dark or even black material. Hyraldite offers the advantage that the material does not assume a yellow tinge, which is of particular importance in the production of blues, violets, greens and light mode shades.

The stripping with hyraldite is best carried out in a clean wooden vat. Copper vessels do not affect the stripping, but are apt to cause spots on the goods.

Charge the bath at a temperature of 105°-120° F. with

2 to 4% hyraldite Z for stripping,
2.5 to 5.5% formic acid 85%, or
1 to 2% sulphuric acid of 168° Tw

or

2 to 4% hyraldite Z soluble conc.
1 to 2% formic acid 85%.

Enter the goods, raise in about 1/2 hour to the boil, and boil for 20 to 30 minutes. Rinse well in cold water, and also in warm water, and then dye.

Instead of hyraldite Z for Stripping and Z soluble concentrated, hyraldite A and C extra may likewise be used, the following quantities being required:

5 to 10% hyraldite A or 2.5-5% C extra with
5 to 10% acetic acid 30% or, bisulphite of 64° Tw.

Another carbonizing process which is largely used, is based upon the destructive action of gaseous hydrochloric acid generated either by allowing the liquid acid to flow slowly into an externally heated iron chamber, or by heating a mixture of rock salt and oil of vitriol.

The hydrochloric acid or dry gas process in several modifications has been patented by a number of inventors. The two most important patents being issued to Messrs. Jourdin & Balan in 1877 and another patent issued by an inventor named Michel in 1877. Nitric acid in gas form has also been used, the gas being generated by the action of oil

of vitriol upon nitrate of soda. The result was not a success. While the cotton or other vegetable matter was destroyed the wool fiber was considerably injured.

Certain metallic salts have been recommended from time to time, but those most frequently used have been chloride of magnesium and chloride of aluminium. Chloride of aluminium is usually employed in solution of a strength between 9° and 10° Tw. The material to be treated is saturated by soaking for a few hours, afterwards whizzed and dried at a moderate temperature, and finally baked in a carbonizing oven at 194° F. for an hour. Usually the vegetable matter becomes very brittle and easily dusted out before this temperature is reached.

(To be continued)

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Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

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Recipe No. 74

BROWN ON COTTON AND WORSTED UNION CLOTH

Helvetian Union Brown D G on 100 lbs. cotton and worsted union cloth. Prepare the dye bath with

4 lbs. Helvetian Union Brown D G.
(Swiss Colors Co., 15 E. 12th St., New York, N. Y.)

20 lbs. Glauber's Salt.

Enter at 130° F., run at this temperature 10 minutes, raise slowly to a boil in 15 minutes, shut off steam, and steep 1/2 hour before rinsing.

Helvetian Union Brown D G possesses excellent covering power for unions containing cotton, wool and silk, all three being dyed identically.

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Recipe No. 75

BLUE ON COTTON YARN

Helvetian Pure Blue G on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Helvetian Pure Blue G.
(Swiss Colors Co., 15 E. 12th St., New York, N. Y.)

Enter at 180° F., boil 1/2 hour, then add
20 lbs. Glauber's Salt

and boil 1/2 hour longer. Then steep in bath 1/4 hour.

Helvetian Pure Blue G gives a beautiful bright blue on cotton fast to light, washing, acids, alkalies and ironing and barely stains wool in union dyeing.

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Recipe No. 76

RED ON WORSTED YARN

Fulling Red I S on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. Fulling Red I S.
(Innis Speiden & Co., 46 Cliff St., New York, N. Y.)
10 lbs. Glauber's Salt.
3 lbs. Acetic Acid.

Enter at 160° F. and dye at a boil for one hour.

Fulling Red I S possesses excellent fastness to light.

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Recipe No. 77

RED ON ARTIFICIAL SILK YARN

Chlor. Brill. Bordeaux R H on 100 lbs. yarn. Prepare the dye bath with

3 lbs. Chlor. Brilliant Bordeaux.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)
20 lbs. Glauber's Salt.

This is a direct color and exceptionally good for this class of work.

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Recipe No. 78

BLACK ON ARTIFICIAL SILK

Titan Black D Extra Conc. on 100 lbs. yarn. Prepare the dye bath with

5 lbs. Titan Black D Extra Conc.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)
25 lbs. Common Salt.

This is a direct color and exceptionally good for this class of work.

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Recipe No. 79

BLUE ON WORSTED YARN

Guinea Cyanine L G on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Guinea Cyanine L G
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
15 lbs. Glauber's Salts.
4 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Guinea Cyanine L G possesses excellent fastness to alkalies, and good fastness to light, acids, rubbing, decatizing and carbonizing.

Recipe No. 80

RED ON WORSTED DRESS GOODS

Red on 100 lbs. worsted dress goods. Prepare the dye bath with

3 ozs. 370 grs. Amazo Blue.
(American Dyewood Company, 80 Maiden Lane, New York, N. Y.)
2 lbs. 1⅜ ozs. Amazo Brill. Red 2 B.
11⅜ ozs. Amazo Fast Yellow L R.
6⅜ ozs. Amazo Fast Pink Y.
20 lbs. Glauber's Salt.
3 lbs. Oil of Vitriol.

Enter at 120° F., bring to boil in 20 minutes and boil one hour.

The above colors are of all around good fastness and have good leveling properties.

Recipe No. 81

TAN ON WORSTED DRESS GOODS

Tan on 100 lbs. worsted dress goods. Prepare the dye bath with

380 grs. Amazo Blue.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
2 ozs. 69 grs. Amazo Brill. Red 2 B.
12⅝ ozs. Amazo Yellow L R.
15 lbs. Glauber's Salt.
2 lbs. Oil of Vitriol.

Enter at 120° F., bring to a boil in 20 minutes and boil one hour.

The above colors are noted for their good leveling properties and all around fastness.

Recipe No. 82

YELLOW ON COTTON YARN

Erweco Vat Yellow G (Paste) on 100 lbs. cotton yarn. Prepare the dye bath with

12 lbs. Erweco Vat Yellow G (Paste)
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)

which has been stirred to a smooth mixture with a little warm water, then add

6 lbs. Caustic Soda, 76° Tw.,
6 gals. Water,
3 lbs. Hydrosulphite Powder (conc.),

while stirring, and permit to stand until the yellow colored suspension is converted into a clear red solution.

To the dye bath prepared with the necessary amount of water add

60 lbs. Common Salt,

and the reduced dye liquor as prepared above.

Dye for 3/4 hour at 86° to 104° F., keeping below the surface of the liquor. Wring well, expose to the air for some time, rinse, acidulate in cold dilute sulphuric acid

½ oz. 66 to gal. Water.

Rinse and soap in a boiling bath containing

3 lbs. Castile Soap.

Erweco Vat Yellow G (paste) (pat.) possesses very good fastness. To produce a very bright, full yellow pass through a chloride of lime solution 1/2° B. or 7° Tw. for 20 to 30 minutes. An after-exposure to air is advisable with unbleached goods.

Recipe No. 83

BLUE ON WORSTED YARN

Alizarine Cyanole B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Alizarine Cyanole B.
(Cassella Color Co., 182 Front St., New York, N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Alizarine Cyanole B possesses very good fastness to light, alkalies, carbonizing and steaming.

Recipe No. 84

RED ON WORSTED YARN

Wool Red K 10 B X on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Wool Red K 10 B X.
(Badische & Co., 86 Federal St., Boston, Mass.)
10 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter at 140° F. and dye at a boil for one hour.

Wool Red K 10 B X possesses excellent coloring power and good fastness to light.

Recipe No. 85

VIOLET ON COTTON YARN

Naphtamine Fast Violet 2 B on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Naphtamine Fast Violet 2 B.
(Kalle & Co., 530 Canal St., New York, N. Y.)
20 lbs. Glauber's Salt (Calcined).
2 lbs. Soda Ash.

Enter at 180° F. and dye at a boil for one hour.

Naphtamine Fast Violet 2 B will be found to be a brilliant and level dyeing color, possessing very good fastness to light.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Cleaning Textiles. Joseph J. Causeman, 33 Union Sq., New York. A machine for cleaning textile fabrics by the "Sanitex" pneumatic process. It is stated that grease, paint and oil spots can be easily removed from cotton, wool, silk and other textile goods.

Warper for Knitting Machines. Max Nydegger, 260 West Broadway, New York, is placing on the American market an improved machine for warping silk on spools for the Milanese or Travers warp knitting machines. A description appears in this issue.

Waterproof Process. Paul Krendl, care Alexander Denes, 125 East 23rd St., New York. A process for rendering fabrics proof against water, mildew and fire. This process was invented in Austria and the inventor is now introducing it into the United States.

Beam Lowering Device. Butterworth & Dickinson, Brunley, England. A device for facilitating the exchange of beams on a warping or beaming machine. It relieves the operator from lifting any of the weight.

Ball Winder for Noble Combs. Taylor, Wordsworth & Co., Leeds, England. An improved ball winder for Noble combs which is said to embody a number of improvements.

Warp Stop Motion. Desiderius Schatz, Zittau, Germany. An improved electric stop motion which is said to embody a number of improvements.

Waste Cleaning Machine. Carl Netz & Co., Breslau, Germany. An apparatus for cleaning oily waste and similar materials by a chemical process.

Asbestos Rolls. Thomas Monk, Blackburn, England. A method of covering with asbestos the squeeze rolls used for the finishing of textile materials.

Rinsing and Mercerizing Goods. J. P. Bemberg, Barmen-Rittershausen, Germany (Alfred Suter, New York, American agent). An improved apparatus for cleansing mercerized goods. The cloth is exposed to the action of steam, which removes the caustic from the fabric. The caustic is reclaimed.

Ring Frame for Cotton Waste. Platt Bros., Oldham, Eng. A ring frame for spinning cotton waste yarn, embodying a number of improvements.

Roller Cleaning Apparatus. The Harrington Patent Yarn Evener Co., Manchester, Eng. An improved device for cleaning the lower rollers of ring spinning frames.

Cross Winding Machinery. John Hetherington & Sons, Ltd., Manchester, Eng. An improved cross winding machine which has no eccentrics, cams or grooved cylinders for operating the guides.

Moistening Warp in the Loom. G. W. Hargreaves, Blackburn, England, has recently brought out a device for moistening the warp while the cloth is being woven.

Warp Tension Device. Joseph Benn, Bradford, England. An improved device for regulating the tension on the warp during weaving.

Cleaning Covered Rolls. Otto Kuehnen, M. Gladbach, Germany. A machine for cleaning rollers that have been covered with plush, cloth or similar material and used in the drawing and spinning processes.

KRAFT PAPER CONE FOR WINDERS

The introduction of the new taper type of cone arbors by builders of winding machines has brought about a demand for larger paper cones with a rougher surface to prevent the slipping of the yarn and also for harder and tougher cones to prevent collapsing.

The Pairpoint Corporation, New Bedford, Mass., has met these requirements with the Kraft paper cone which is harder and rougher than the regular gray pulp cone.

THE KRAFT PAPER CONE FOR WINDERS

Those who are familiar with paper are aware of the toughness and superiority of Kraft paper over ordinary manila paper and the strength and toughness of the new Kraft cone compares with the old gray pulp cone in about the same proportion. In spite of its superiority, the price is the same as for gray pulp cones.

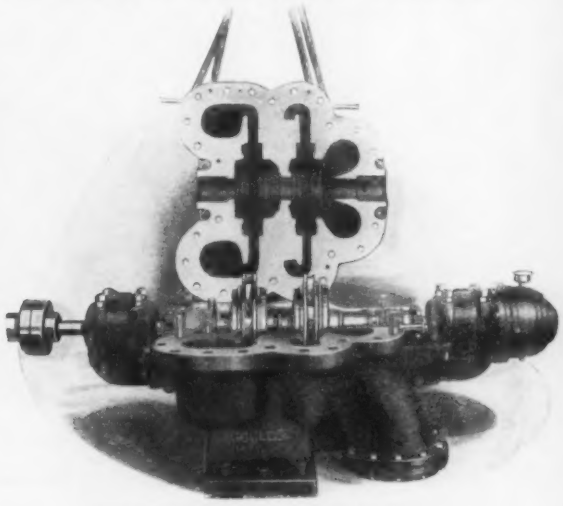
Another feature is the patent "Knit-All" point. By a process of their own they produce a smooth, glazed surface at the point so that the yarn runs off freely without catching or snubbing.

They believe that these improved features make the best cone for winders and knitters that has ever been manufactured.

Sample cones will be sent on request so that anyone interested may examine and give them a trial.

THE GOULDS CENTRIFUGAL FIRE PUMP

The fire pump shown in the accompanying illustration, and built by the Goulds Mfg. Co., Seneca Falls, N. Y., has been designed to meet the exacting requirements of fire protection service. The capacity is large for the floor space required, and the weight and first cost are low as compared with many other types of pumps. The construction is extremely simple and there is nothing to get out of order and cause delay when the pump is needed; the pump is adapted for direct connection to electric motors or steam turbines, and it maintains a steady pressure at



THE GOULDS CENTRIFUGAL FIRE PUMP

the discharge. Because of these many desirable characteristics of the centrifugal pump for fire service, the Underwriters have made a special study of the type and have issued specifications covering the features the pump must have to meet their requirements. The Goulds line of centrifugal fire pump is built in conformity with the specifications of the Association Factory Mutual Fire Insurance Companies. The National Board of Fire

Underwriters and the National Fire Protection Association. Goulds pumps have been tested to see that they meet the "National standard" and have been fully approved by the engineering department of the Association Factory Mutual Fire Insurance Companies.

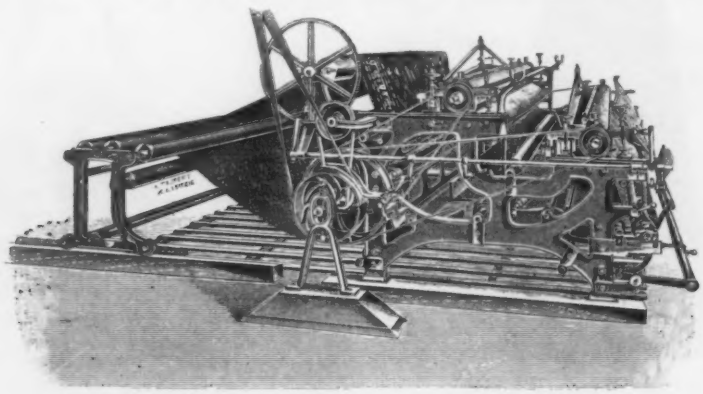
These pumps can be used to discharge direct into hose lines or for service with automatic sprinkler systems. In the latter service, fifteen to twenty sprinklers are considered the equivalent of one 1 1/8-inch fire stream in the amount of water required. The pump is built of the best materials and especially designed to ensure absolute reliability. The feature that will commend itself to users is the accessibility of all the parts, permitting inspection to be made at any time with little labor.

The casing is made of close grained gray cast iron of uniform thickness of section, so designed that the castings are free from any shrinkage strains. It consists of two castings only, and is horizontally divided on a plane passing through the center of the shaft. Both suction and discharge nozzles are cast with the lower half. The upper and lower halves of the casing are bolted together and maintained in strict alignment by means of taper dowel pins. By removing the upper half, the impellers and shaft as well as the water passages of the pump are entirely exposed, as shown at Fig. 1.

The impellers are of the most modern enclosed type, made of the best quality phosphor bronze, and have vanes of such shape as to give the highest possible efficiency when operating under the conditions for which the pump is built. The shaft is made of open hearth, high carbon steel, heat treated, of great tensile strength. It is turned and ground, and of ample size, not only to transmit the power but to prevent deflection between the bearings. The bearings are of the ring oiling type and are mounted in housings bolted to the lower half of the pump casing. This pump is built in various sizes to meet the requirements of the different plants.

THE LARGEST CARPET SHEAR IN THE UNITED STATES

What is believed to be the largest shearing machine in America has recently been installed at the plant of McCleary, Wallin & Crouse, Amsterdam, N. Y. This machine is provided with two special shearing cylinders by which two cuts can be given to the carpet in one operation and a much smoother face obtained. The pile is cleaned and brushed by a special brushing roller. A new feature is the special steaming arrangement which enables the carpet to be sheared and steamed in one operation. The steaming up to the present has always been done separately. After the shearing process the carpet is wound automatically on a roll, no beam being necessary. The machine at Amsterdam is 16 ft. 7 in. wide on the face of the shears and weighs over eight tons. It was built by



THE LARGEST CARPET SHEARING MACHINE IN AMERICA

Carl Brueckner's Nachfolger of Glauchau. A. W. Buhlmann, textile engineer, New York, is the American representative of the German firm.

A similar machine has been installed lately at the Toronto Carpet Mfg. Co. The builders of these shears are specialists in this line and have built carpet shears as wide as 20 feet on the face of the shearing cylinders.

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CONDENSER AND COOLING TOWER FOR A MIXED PRESSURE TURBINE

BY GEORGE F. POND

Plants built primarily to generate power, as central stations, are located along a water front to obtain ample cooling water for the condensers, but mills, factories and industrial plants must very often be constructed where cooling water is scarce or entirely unavailable. For this reason, non-condensing engines have been installed in most cases and the loss in the steam escaping to the atmosphere has been considered as unavoidable. The lack of condensing water has also been a drawback to the use of mixed-pressure and low-pressure turbines in such plants, although by their use, the power capacity can be almost doubled for the same coal consumption and boiler house equipment. The savings attainable are so great that it pays to install apparatus for artificially recooling the condensing water, and the only problem is in selecting a recooler which is as nearly equivalent as possible to a natural supply of cold water.

There are many devices for recooling water, including large artificial ponds, spray nozzles and ponds, open cooling towers, closed cooling towers of the forced draft type, and closed cooling towers of the natural draft type. Enclosed cooling towers are the most efficient means of recooling water and of these, the natural draft tower is preferable where the ground area available for the tower is sufficient. The following paragraphs describe a mixed-pressure turbine installation at the plant of the Sauquoit Silk Mfg. Co., at Scranton, Pa., the condensing plant and a natural draft, chimney type enclosed cooling tower being furnished by the Wheeler Condenser & Engineering Co., Carteret, N. J., and is an excellent example of present day condensing and recooling practice.

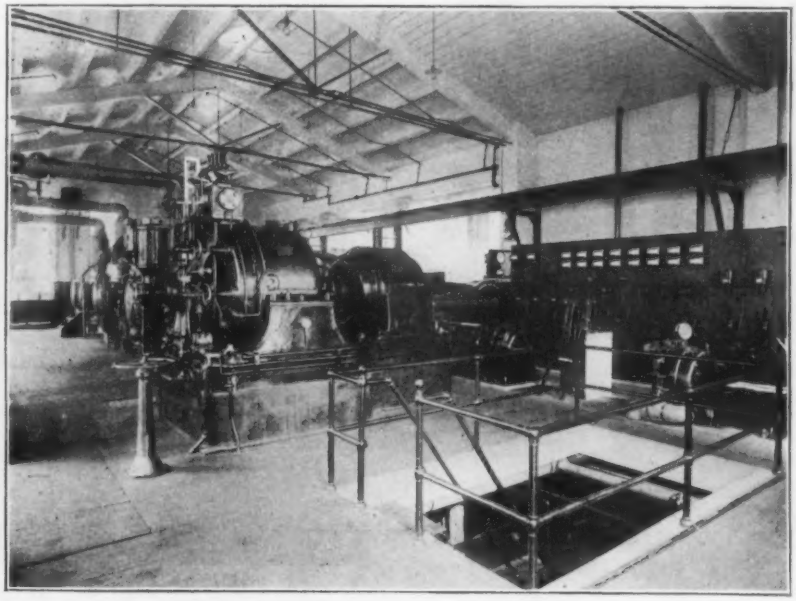


FIG. 1. AN ENGINE ROOM SHOWING ENGINE TURBINES

The steam turbine is a Curtis 500 kilowatt

mixed-pressure, 3600 r. p. m. machine, driving a 60-cycle alternator and is supplied with exhaust steam from three 300 h. p. Ballwood cross compound engines, which may be seen behind the turbine at Fig. 1. Any deficiency in the exhaust of the engines is made up

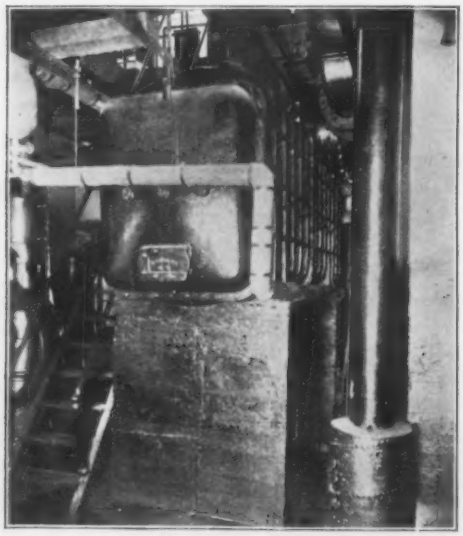


FIG. 2. VIEW OF A CONDENSER

automatically by live steam, which is admitted to a high-pressure stage of the turbine through which it expands before joining the low-pressure steam. The condensing equipment, comprising a Wheeler surface condenser, Wheeler motor-driven circulating pump, Wheeler-Edwards air pump and Wheeler-Balcke cooling tower, was guaranteed to condense 20,000 lbs. of steam per hour and maintain a 27-inch vacuum when the air is at 75° F. temperature and 70 per cent. humidity.

The atmospheric conditions of 75° F. and 70 per cent. humidity are the average for the months of July and August, the least favorable in the year, while the average annual conditions are about 55° temperature and 70 per cent. humidity. The vacuum at the exhaust of the turbine averages 27 inches during the hottest months of the year, and the other ten months, between 27 and 28 inches, going even slightly above 28 inches at times of low temperature and humidity.

The condenser shown by the photograph of Fig. 2 is of the Wheeler admiralty type, with rectangular shell. The circulating water makes two passes through the condenser and is heated to within a few degrees of the exhaust steam temperature, as shown by the test figures.

The condenser and pump are in the basement, beneath the turbine, the pumps being shown at Fig. 3, in which the Wheeler-Edwards air pump is in the front, and the motor-driven circulating pump in the rear. The Wheeler-Edwards pump is of the single, steam-driven type, operating at 95 r. p. m. Fig. 3 shows the air discharge vent and the discharge connection for the condensate which is delivered to a height of 12 feet without the aid of a separate pump. The motor-driven circulating pump has a capacity of about 1,600 gallons per minute,

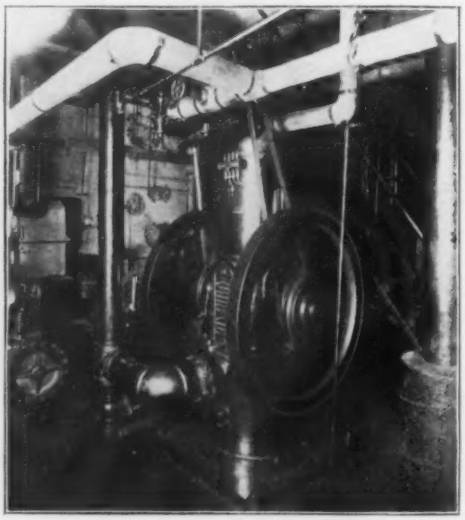


FIG. 3. THE WHEELER-EDWARDS AIR PUMP

the water being drawn from the sump of the cooling tower, pumped through the tubes of the condenser and delivered to the distributing troughs of the tower, which are at an elevation of about twenty feet.

A photograph of the tower is shown at Fig. 4. The base of the tower is square in section and the chimney octagonal, giving a pleasing appearance. The height of the chimney above the foundations is 70 feet,

and this gives ample natural draft and makes the fans unnecessary. The tower, when once installed, is as permanent as a building, requires no attendance, consumes no power and is equivalent to a natural supply of cold cooling water.

Fig. 5 shows the tower in section and illustrates the arrangement of zigzag cooling stacks, and the distributing system for the water, which consists of wooden troughs, from which the water falls through iron spouts onto splash plates, which throw the water out in all directions and distributes it evenly over the whole area of the filling. The water is cooled in two ways, first, by

FIG. 4. VIEW OF THE WHEELER-BALCKE TOWER AT THE SAUQUOIT SILK MFG. CO.'S PLANT

the evaporation of a small percentage of the water which abstracts approximately 1000 B. t. u. (cooling 40 lbs. 25°) for each pound of water evaporated, and secondly, by the heat taken up from the water by the warming of the air. This latter is only a small percentage of the cooling, by far the greatest part being due to evaporation. It is of interest to compare the quantity of water lost and the make-up required due to this evaporation in the tower, with the loss of water with non-condensing engines.

If all the cooling in the tower is by evaporation then approximately 1 lb. has to be evaporated to dissipate 1000 B. t. u., which is equal to the heat given up to the water by the condensation of 1 lb. of exhaust steam. Actually the increase in temperature of the air absorbs about 20 per cent. of the heat in the tower so that the loss of water is 80 per cent. of the condensation. Without the low-pressure turbine, all of the steam would be exhausted to atmosphere and only

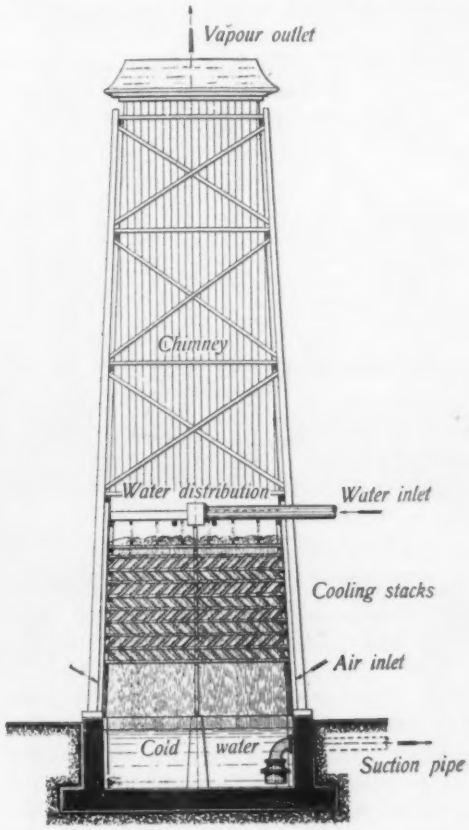


FIG. 5. SECTION OF A TYPICAL WHEELER-BALCKE NATURAL DRAFT COOLING TOWER

half the power generated; or for the same power twice the steam would be exhausted representing more than twice the loss of water per k. w. hour. Where city water must be purchased at meter rates this saving in water alone is a considerable item.

The following tables show the results obtained in August, 1913, with loads of 450 and 500 k. w. on the turbine running with exhaust steam corresponding to an engine load of 400 k. w. With atmospheric conditions of 74° F. temperature and 86 per cent.

humidity and a load of 450 k. w., the vacuum corrected to a 30-inch barometer was 27.55, and at 500 k. w. and the same atmospheric conditions, the vacuum was 27.4.

Test No. 1
August 6, 1913

Turbine Load	450 k. w.
Temerpature exhaust steam entering condenser	108°
Temerpature circulating water in	84°
Temerpature circulating water out	104°
Temerpature condensate	90°
Temerpature atmosphere	74°
Per cent. humidity	86%
Humidity corrected to 30-in. barometer	27.55"

Test No. 2

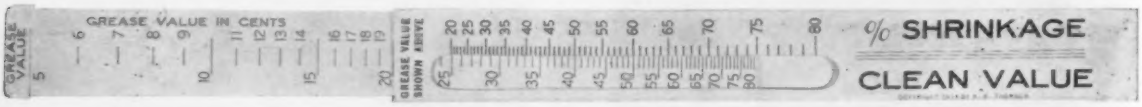
Load on 500 k. w. Turbine	500 k. w.
Temperature exhaust steam entering con.	112°
Temperature circulating water in	86°
Temperature circulating water out	107°
Temperature condensate	97°
Temperature atmosphere	74°
Per cent. humidity	86%
Humidity corrected to 30-in. barometer	27.4"

The atmospheric conditions are considerably less favorable than the guarantee, while the vacuum is almost half an inch higher. This remarkably high vacuum is explained in part by the margin of capacity of the apparatus, and also because the turbine was not operating entirely on low-pressure steam, and the amount condensed at 500 k. w. was somewhat less than the rated 20,000 pounds.

This equipment has been in operation for about a year. The operating records show that during the winter months, the vacuum runs about 28 inches, and the average vacuum throughout the year is 27 1/2 inches. The increase in plant economy due to the installation of the mixed pressure turbine, the cooling tower and condensing equipment amounts to a large sum per year and it is estimated that the entire equipment will pay for itself in 5 years. The plant was designed and installed by the Sauquoit Silk Mfg. Co. under the direct supervision of their mechanical superintendent, L. G. Schlehner.

A SLIDE RULE FOR WOOL

The slide rule shown in the illustration and which is being distributed to wool growers and the wool trade generally by the National Wool Warehouse Storage Co., 4300 S. Robey St., Chicago, Ill., indicates the cost per scoured pound for combinations of shrinkage and grease cost, the scale ranging from 20 to 80 per cent. and from 5 to 80 cents a pound. The rule is shown here set at a grease value of 20 cents, the corresponding scoured cost and shrinkage being in line and easily read. It is a very convenient calculator, taking the place of shrinkage tables and dispensing with calculations except where great accuracy is required. If American wool growers had familiarized themselves with a rule of this kind years ago they would have acquired a knowledge of the effect of shrinkage on the cost per scoured



A SLIDE RULE FOR WOOL

pound and been saved from many costly mistakes in politics as well as in trade. We think the rule could be made more convenient by changing the lettering and figures so as to read them when the instrument is held in a horizontal position with the slide at the right.

The value of cotton goods imported in 1913 amounted to $63,938,983.

The value of cotton goods of domestic manufacture exported during 1913 amounted to $53,743,977.

In 1912 the total exports of cotton tissue from Japan amounted to $13,149,000, while Great Britain exported to China alone in the same year $40,528,085 worth.

An association of cotton manufacturers has been organized in Moscow comprising 47 factories and representing a total of 3,700,000 spindles.

A MACHINE FOR DAMPENING CLOTH

The illustrations show a longitudinal section, Fig. 1, and a cross section, Fig. 2, of a machine recently patented in this country and designed for dampening finishing cloth so as to impart the normal percentage of moisture that has been removed by drying or other processes. In the dry finishing of cloth, the atmospheric conditions are far from normal. After the cloth comes from the wet processes it is dried. It then goes through various operations, which are carried on in rooms artificially heated and unusually dry, and the final process is usually pressing, which is carried on at a high temperature. After undergoing this last process, the cloth is examined, and, in many cases, shipped, while still retaining its more or less dry condition. It is desirable that the cloth should contain the moisture which it is capable of retaining under normal conditions of temperature and atmospheric humidity as thereby it is softer of texture and has better wearing qualities than when excessively dry.

The object of this machine is to restore the cloth to its natural condition and fill the wool with the normal amount of aqueous vapor which should be present; and to supply such vapor uniformly to all parts of the cloth in a natural expeditious and inexpensive manner.

Fig. 1 is a longitudinal sectional view of the apparatus; Fig. 2, a cross section on the line 2—2 of Fig. 1. The apparatus consists essentially of a box or case, a, which is entirely closed except for openings, b and c, at its opposite end walls through which the cloth to be treated respectively enters and leaves the case. Within the case and extending from side to side are driving rolls, d, and guide rolls, e, arranged in two series of rows near the top and bottom of the box

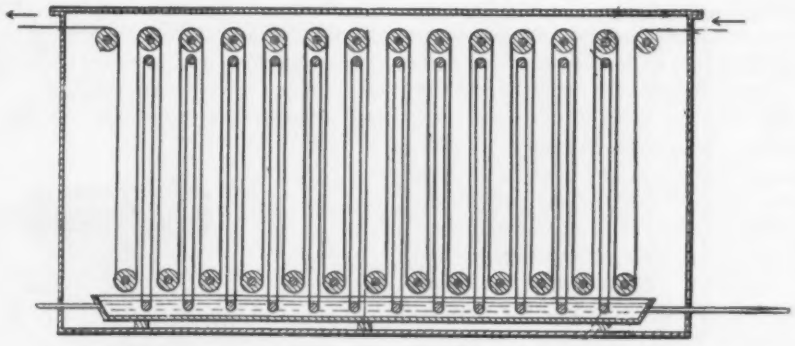


FIG. 1. A LONGITUDINAL SECTION OF THE MACHINE

respectively. The web of cloth, f, passes over and partly around the endmost driving roll, d, around the first roll, e, of the lower series, then around the second roll, d, passing over and under the rolls, d and e, respectively until it finally passes over the last roll,

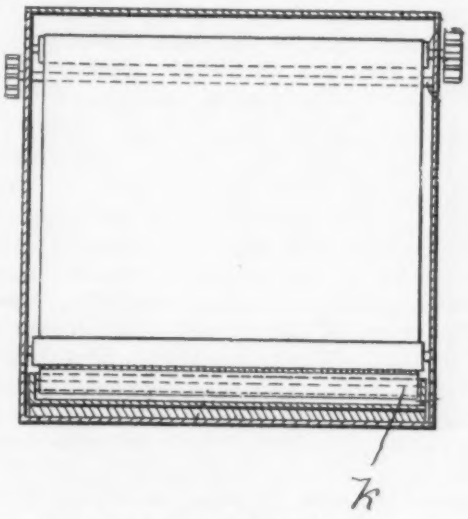


FIG. 2. A CROSS SECTION OF THE MACHINE

d, of the upper series and so on out through the exit opening, c. The rolls, d and e, thus guide the cloth so that a relatively great length of the web is contained within the box and passes back and forth in numerous stretches or lengths approximately parallel and close to one another. All of the rolls are positively driven so as to avoid stretching the cloth while undergoing the conditioning treatment.

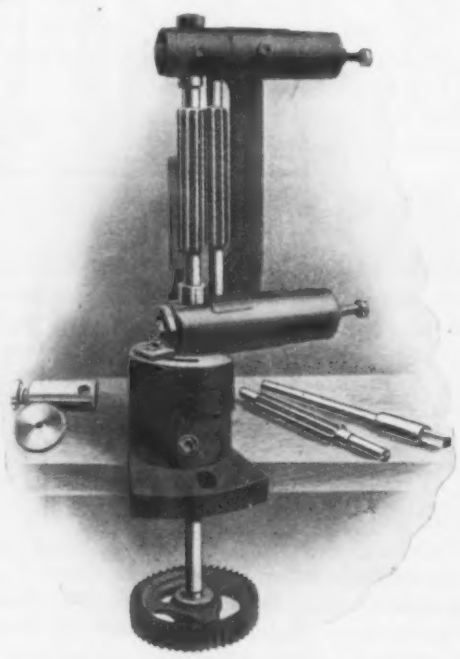
The aprons or water conveyors pass about an upper driving roll and a lower guide roll, which is located below the surface of the water in the tray so that the apron constantly dips into the water. As many as possible of these conveyors are provided, with one conveyor located in each space between the cloth guiding rolls. The rolls which support and drive the water conveyors are driven as shown in Fig. 2, each roll being equipped with a pinion and all of the pinions being intermeshed and driven by a suitable driver. The water conveyors are driven at a slow rate of speed, to keep them well supplied with water, while the cloth being treated is driven at a high rate of speed.

A DEVICE FOR THE DRAWING-OFF ROLLERS ON NOBLE COMBS

BY JOHN BROWN

In a recently published article, "Faults in Combing," it was pointed out that cut slivers, and the rapid wearing out of leathers are caused by the press roller not being in proper alignment with the driving roller, owing to the uneven wearing of the brass bushes in which the ends of loose rollers run. The thrust of the driving roller, together with the oscillating movement inseparable from all fluted rollers quickly wears the near edge of bush. Steel plates fixed on sides, and other contrivances have failed to cure this fault of short bush wearing. Whitehead, Layland & Galloway, an English firm, have recently patented a new style of headstock which overcomes the difficulty. In place of the ordinary head with square cut recess for block and spring, the whole fitting is made cylindrical, while the bushing, A, shown in the illustration, is in the form of a spindle, fitting into a socket, bored nearly the whole length of the headstock. The bushing is large enough to allow a spring to fit into its hollow part. A groove is cut in the side of, and a screw through the block ensures the bushing being kept in position when the head is removed for changing leathers. The loosening of one screw releases the headstock, so that changes can be effected without extra loss of time.

The bushes and springs are encased in headstock to prevent any dust or other matter getting into joints. Besides ensuring



A NEW DEVICE FOR THE DRAWING-OFF ROLLERS ON NOBLE FRAMES

regular drawing, and absence of cut work, the saving in cost of leathers soon pays for the initial outlay, while the length of the bushing and style of fittings ensure the bushes lasting as long as the rollers themselves. The advantages are: better work, longer wear of leathers, and a saving in oil and driving power. The illustration shows the construction and working parts.

Personals

John G. Kelly, superintendent of the Bates Manufacturing Co., Lewiston, Me., who has just completed a continuous service of fifty years for that company and who advanced himself from office boy up to his present position, was presented with a beautiful gold watch in token of his long and loyal service. Mr. Kelly was wholly taken by surprise, but managed to thank those present for their kind remembrance.

William Floyd Lee, chief engineer of C. W. Hunt Co., Inc., West New Brighton, N. Y., at a recent meeting of the Board of Directors, was elected vice-president and chief engineer of the company.

James Moreland has been engaged as superintendent of bleaching and finishing by the Canadian Niagara Linens, Ltd., Niagara Falls, Canada. Mr. Moreland was with the Brookfield Linen Co. of Belfast for about twenty-two years and almost eleven years with the Niagara Textile Co. of Lockport, N. Y.

Edward Smith, overseer of weaving at the Waterman Worsted Co., Putnam, Conn., has severed his connection with that company.

Joseph Pedro, designer at the Gosnold Mill, New Bedford, Mass., has been appointed overseer of weaving for the same company, succeeding John E. Wood, who has resigned.

H. S. Hartley has accepted the position of overseer of carding at the Seminole Manufacturing Co., Clearwater, S. C. He was formerly employed at the Utica Knitting Co., Sherburne, N. Y.

E. H. Boyce has accepted the position of overseer of finishing at the Lacon Woolen Mills, Lacon, Ill. He comes from Springfield, Ill.

Patrick Devine, overseer of carding at the Broad Brook Co., Broad Brook, Conn., has severed his connection with that company.

Richard H. Fish has been appointed assistant superintendent at the Davol Mill, Fall River, Mass.

Walter Thomas, second hand in the weaving department at the Gosnold Mill, New Bedford, Mass., has resigned his position with that company.

T. G. Haigh has been appointed secretary and treasurer of the Holt-Williamson Manufacturing Co., Fayetteville, N. C.

Charles H. Law has been elected secretary and treasurer of the Langley Manufacturing Co., Langley, S. C., and the Aiken Manufacturing Co., of Bath, S. C.

R. C. Wortham has been elected treasurer of the Patterson Mills, Roanoke Rapids, N. C.

John C. Rankin has been elected president of the Holland Manufacturing Co., Gastonia, N. C.

Samuel Westall has been appointed superintendent of the Sylvan Cotton Mills, Shelbyville, Tenn. He was formerly employed at the Jonesboro Yarn Mill, Jonesboro, Tenn.

Joseph Walker, overseer of dyeing and bleaching at the Elizabeth City Hosiery Co., Elizabeth City, N. C., has resigned to accept a position as overseer of finishing at the Cannon Manufacturing Co., Kannapolis, N. C.

J. A. Quick has accepted the position of overseer of carding at the Chadwick Mill, Charlotte, N. C.

William Keighley has accepted the position of overseer of carding and spinning at the Necronsett Mills, Cumberland, N. C. He was formerly employed at the Dixie Mills, La Grange, Ga.

L. T. Curry has accepted the position of overseer of weaving at the Maplecroft Mills, Liberty, S. C.

Henry A. Gill, a well known woolen boss grader, who has been employed for a number of years with Luce & Manning, wool dealers of Boston, Mass., died at his home in Dorchester at the age of 46 years. His widow, a daughter and one son survives him.

Thomas F. Crofwell is now representing the Standard Soap Manufacturing Co. of Woonsocket, R. I., among the mills in the New England states.

Leo J. Shindler, overseer of weaving at the Darling Woolen Mills Co., Holliston, Mass., has resigned his position with that company.

William M. Taylor, overseer of weaving at the Woodside Woolen Co., Northboro, Mass., has resigned to accept a similar position with the Darling Woolen Mill Co., Holliston, Mass.

Levi D. Barnes, for forty-six years millwright at the Weybosset Mill, American Woolen Co., Providence, R. I., has severed his connection with that company. He was presented with a loving cup, gold watch, chain and charm.

T. V. Branigan, overseer of spinning at the Hoosac Cotton Mills, North Adams, Mass., has resigned his position with that company. The employes in the spinning department presented him with a gold watch fob.

Robert J. Smith, foreman in the warping and winding departments for Cheney Bros., So. Manchester, Conn., has resigned his position with that company after a number of years of service. He was presented with a gold watch suitably inscribed, together with a fob and Odd Fellows' charm. H. G. Anderson, in behalf of the employes of the department, made the presentation speech. Mr. Smith was wholly taken by surprise, but responded in a few well chosen words.

B. R. Blakely succeeds Wilbur Barnes as treasurer of the Griffin Manufacturing Co., Griffin, Ga.

I. L. Britt has accepted the position of overseer of spinning, spooling and warping at the Bellwill Mill, Wilmington, N. C.

C. C. Miller has accepted the position of overseer of dyeing at the Manetta Mills, Lando, S. C.

C. D. McDonald has accepted the position of overseer of spinning at the Durham Hosiery Mill No. 4, Carrboro, N. C.

F. M. Tidwell has accepted the position of overseer of spinning at the Judson Mills, Greenville, S. C. He was formerly employed at the Drayton Mills, Spartanburg, S. C.

T. F. Blume has accepted the position of overseer of carding and spinning at the Smitherman Mills, Troy, N. C.

Douglas Ballard has accepted the position of assistant superintendent at the Georgia Cotton Mills, No. 1, Griffin, Ga.

W. B. Varnadore has accepted the position of overseer of carding at the Eureka Mill, Chester, S. C. He was formerly employed at the Hanes Mill, Winston-Salem, N. C.

J. H. Laughter has been promoted from second hand to overseer of weaving at the Eva Jane Mills, Sylacauga, Ala.

J. W. Phillip has accepted the position of master mechanic at the Hermitage Mill, Camden, S. C. He was formerly employed at the Arcade Mill, Rock Hill, S. C.

Henry Schwartz, for a number of years overseer of dyeing at the Fred L. Sayles Co., Pascoag, R. I., has resigned his position with that company.

James J. Seigfried, who took an active part in the organization of the Catasauqua Silk Co. of Catasauqua, Pa., died at the age of 63 years.

William Worsnop has been appointed superintendent of the Farwell Mills, Lisbon, Me. He resigns a position as superintendent of the Fort Dummer Mills, Brattleboro, Vt.

A. W. Dimmick has been elected treasurer of the Grosvenordale Co., North Grosvenordale, Conn. Mr. Dimmick was assistant treasurer and succeeds A. H. Tillinghast.

D. F. Bean, agent of the Farwell Mills, Lisbon, Me., has resigned his position with that company.

Henry Clinton Dexter of Pawtucket, R. I., was elected president of the Southern New England Textile Club at its annual meeting held in Providence, R. I., June 13. Alexander Makepeace of Fall River, Mass., was elected vice-president and F. L. Chase of New Bedford, Mass., secretary and treasurer.

Charles H. Collins, for over twenty-five years connected with the Berkeley Mill, Berkeley, R. I., first as master mechanic, afterwards as paymaster and for the past fifteen years as superintendent, has resigned his position with that company on account of ill health. He is succeeded by John E. Cray, who has been overseer of carding for a number of years at that mill.

Alphonse Thiebault, overseer of weaving at the No. 2 Fall River Iron Works, Fall River, Mass., has resigned his position to accept a similar one with the Pocasset Mills of the same city.

A. B. Paton, agent of the Sawyer Mill, American Woolen Co., Dover, N. H., gave a banquet to the designers, overseers and second hands at Hotel Rockingham. The affair was very successful and all expressed their appreciation.

Herman Rosendale, superintendent of the Henbert Silk Co., Paterson, N. J., has resigned his position with that company.

Fred McGuire, overseer of carding and spinning at J. O. Ballard & Co.'s Mill at Malone, N. Y., has resigned his position with that company.

J. J. Driscoll has accepted the position as overseer of carding and spinning at J. O. Ballard & Co.'s Mill, Malone, N. Y.

Samuel Pendlebury has accepted the position of overseer of dyeing at the Buffalo Dye Works, Philadelphia, Pa. He was formerly employed at the Wharton Mfg. Co., Wharton, N. J.

T. F. Holt has accepted the position as overseer of dyeing at the Lanett Bleachery & Dye Works, West Point, Ga. He comes from Philadelphia, Pa.

Frank C. Judson, overseer of finishing at the Darling Woolen Mill Co., Holliston, Mass., has resigned his position with that company.

Frank Stiner has accepted the position of overseer of finishing at the Darling Woolen Mill Co., Holliston, Mass. He was formerly employed at the Ashtabula Worsted Co., Ashtabula, O.

W. L. Sjostrom has accepted the position of overseer of dyeing at the Merrimack Woolen Co., Lowell, Mass.

Frederick W. Allen, overseer of weaving at the A. L. Sayles Co., Pascoag, R. I., has severed his connection with that company.

W. L. Doepke has been elected president of the Argonaut Cotton Mills, Covington, Ky.

J. C. Stewart has been appointed superintendent of the Hawkinsville Cotton Mills, Hawkinsville, Ga.

E. B. Doolittle has been appointed superintendent of the Bibb Manufacturing Co., Mill No. 2, Macon, Ga.

C. M. Robinson has succeeded W. T. Love as secretary and treasurer of the Holland Mill, Gastonia, N. C.

J. W. Tyler has been appointed superintendent of the Richmond Hosiery Mills, Rossville, Ga.

J. W. Simpson has succeeded W. B. Bell as secretary and treasurer of the Jackson Mill, Monroe, N. C.

J. G. Ponder has been elected secretary and treasurer of the Social Circle Cotton Mills, Social Circle, Ga.

I. L. Britt has accepted the position of overseer of spinning and spooling at the Bellwill Mills, Wilmington, N. C.

J. C. Smith has succeeded J. M. Waddleton as overseer of weaving at the Highland Park Mill No. 1, Charlotte, N. C.

H. C. Moore has accepted the position of overseer of spinning and winding at the Efird Manufacturing Co., Albemarle, N. C.

B. R. Phillips has accepted the position of overseer of carding at the Star Thread Mills, Athens, Ga.

J. H. Mattison, overseer of weaving at the Glen-Lowry Mill, Whitmire, S. C., has resigned.

W. W. Byars has accepted the position of overseer of carding at the Deep River Mills, Randleman, N. C.

C. F. Turner has accepted the position of overseer of carding at the Cora Mill, King's Mountain, N. C.

G. L. Meacham has accepted the position of overseer of carding at the Erwin Cotton Mill No. 1, West Durham, N. C. He was formerly employed at the Knoxville Cotton Mills, Knoxville, Tenn.

T. B. Rector, bookkeeper, shipping clerk and cloth room overseer at the Aldora Mills, Barnesville, Ga., has resigned his position with that company.

G. W. Green has accepted the position of overseer of spinning at the Mollohon Mill, Newberry, S. C.

Michael Herring has succeeded B. A. Robertson as overseer of carding at the Lumberton Mills, Lumberton, N. C.

M. J. Hawkins has accepted the position of overseer of carding at the Patterson Mill, China Grove, N. C.

M. G. Morrill has been appointed superintendent of the Fort Dummer Mill, Brattleboro, Vt. He comes from Kankakee, Ill.

At a meeting of the directors held in Boston, Henry E. Fisher was elected treasurer of the Contoocook Mills Corporation of Hillsboro, N. H. He succeeds George Sayward.

Fred A. Cooley, who has been assistant superintendent of the Atlantic Mills, Providence, R. I., for a number of years, has been appointed superintendent.

P. R. B. Dickinson, superintendent of the Sakonnet Knitting Mill, Pawtucket, R. I., has resigned his position with that company.

Peter Bauer, superintendent of the Paragon Silk Co. with mills at Garfield and Paterson, N. J., also Oneonta, N. Y., has resigned his position with that company.

Paul G. Wetstein has accepted the position of overseer of weaving at the A. L. Sayles & Sons' Granite Mill, Pascoag, R. I. He was formerly employed at the Cocheco Woolen Manufacturing Co., East Rochester, N. H.

Thomas Roe, superintendent of the McCallum Hosiery Co., Northampton, Mass., has resigned his position to accept a similar position with the new company which is starting in the hosiery business at Holyoke, Mass.

Raymond G. Emery has accepted the position of overseer of spinning at the Palmer Mill, Three Rivers, Mass., to succeed his brother, Arthur L. Emery, who has accepted a position with the New England Cotton Yarn Co. of Taunton, Mass.

Guy Goodwin has accepted the position of overseer of spinning at the Stark Mills, Manchester, N. H. He was formerly employed as second hand at this mill.

Abraham Senior has accepted the position of overseer of bleaching at the Fort Schuyler Knitting Co., Utica, N. Y. He comes from Needham Heights, Mass.

Thomas F. Loftus has been appointed overseer of weaving at the Tuxedo Mill, Passaic, N. J. He was formerly employed as overseer of weaving on the night shift at the Princeton Worsted Mill, Trenton, N. J.

C. W. Tobey, of Newmarket, N. H., has been appointed overseer of carding at the Grosvenordale Co., North Grosvenordale, Conn., to succeed Harry H. Houghton.

John T. Condon has resigned the position as overseer of weaving at the Pocasset Mill, Fall River, Mass., to accept a similar position with the Stafford Mill, same city. On his retirement the help in his department presented him with $50 in gold and several useful articles.

Frank Sweeney has been appointed overseer of finishing at the James J. Regan Manufacturing Co., Rockville, Conn. He comes from the Holden, Leonard Co., Bennington, Vt.

James Hamilton has been appointed overseer of weaving at the Cocheco Woolen Manufacturing Co., East Rochester, N. H. He was formerly employed at the Bridgewater Woolen Co., Bridgewater, Vt.

W. E. Ross has accepted the position of overseer of weaving at the Squam Lake Woolen Co., Ashland, N. H. He comes from North Andover, Mass.

James Callahan has accepted the position of overseer of weaving at the Woodside Woolen Co., Northboro, Mass. He was formerly employed in a similar position at the Carolina Mills, Carolina, R. I.

Dennis Riley has accepted the position of overseer of weaving at the Shetucket Co., Norwich, Conn.

Joseph Gray has been elected president of the Mule Spinners' Union at a meeting of that body on June 19 at the Cottrell Bldg., Pawtucket, R. I. Other officers elected were: vice-president, Michael Callahan; secretary, George H. Thornton; treasurer, Francis Mullarkey.

Leo J. Shindler has reentered the employ of the Garland Woolen Co., Staffordville, Conn., as overseer of weaving. He recently resigned a posi-

tion with the Darling Woolen Co. at Holliston, Mass.

Henry Newbury has accepted the position of second hand of dyeing at the S. Slater & Sons, Inc., Webster, Mass.

Benjamin Russell has been elected president of the Marble City Mill, Sylacauga, Ala.

J. Harvey White has been elected president of the Saxapahaw Cotton Mills, Saxapahaw, N. C.

W. L. Steel has been appointed manager of the Brazos Valley Cotton Mills, West, Tex.

Walter Atherton has been appointed superintendent of the Jonesboro Yarn Mill, Jonesboro, Tenn.

B. A. Phillips has accepted the position of overseer of carding at the Star Thread Mills, Athens, Ga.

Thomas Asquith has accepted the position of overseer of spooling, slashing and warping at the Durfee Mill, Fall River, Mass. He was formerly employed at the Weetamoe Mill, in the same city.

Albert E. Riley has accepted the position of overseer of dyeing at the Fred L. Sayles Co., Pascoag, R. I. He was formerly employed at the Rockville Worsted Co., Rockville, Conn.

M. J. Shaughnessey, superintendent of the Atlanta Woolen Mill, Atlanta, Ga., has resigned his position with that company.

Harry Parker has accepted the position of overseer of knitting for Barger, Bains & Munn, Inc., Nescopeck, Pa.

William Allen has succeeded his brother, Matthew Allen, as overseer for the A. D. Gleason Mill, Gleasondale, Mass.

Edward V. Mark has accepted the position of sewing machine fixer for William Sloane & Co., Norfolk, Va. He comes from Utica, N. Y.

Walter Onsey has accepted the position of overseer of weaving at the Galt Robe Co., Galt, Ont., Canada. He comes from Philadelphia, Pa.

J. E. Jones has accepted the position of overseer of beaming at the Patterson Mills, Roanoke Rapids, N. C.

A. B. Patterson has succeeded M. Rothenburg as secretary and treasurer of the Lauderdale Mill, Meridian, Miss.

C. C. Stevenson has accepted the position of overseer of weaving at the Fountain Inn Mfg. Co., Fountain Inn, S. C.

C. E. O'Pry has accepted the position of overseer of carding at the Knoxville Cotton Mills, Knoxville, Tenn. He was formerly employed at the Knoxville Spinning Mills in the same city.

Albert J. Cole has accepted the position of overseer of finishing at the Hartford Woolen Co., Hartford, Vt. He was formerly employed at the James J. Regan Manufacturing Co., Rockville, Conn.

Charles H. Hill, superintendent of the Johnstown Knitting Mill Co., Johnstown, N. Y., has resigned his position with that company. He is succeeded by Daniel Liddle, formerly superintendent of the Capron Knitting Co., of Utica, N. Y.

W. B. Baldwin, for the past five years superintendent of the underwear department at the Lebanon Mill Co., Pawtucket, R. I., has resigned his position with that company.

DEATHS.

Archie MacNicol died at his home in Jewett City, Conn., at the age of 74 years. He was president and manager of the Jewett City Textile Novelty Co. at the time of his death. Mr. MacNicol was born in Scotland, being a member of a family of calico printers. After working in Scotland and England for a number of years he came to this country in 1864 and resided in Providence, R. I., North Adams, Mass., Manchester, N. H., and Norwich, Conn. He was appointed superintendent of the Norwich Print Works at Norwich and later was employed as manager of the Aspinook Co. at Jewett City, Conn. He was the inventor of the first device for printing the face and back of a piece of cloth on a single machine and also the inventor of a flag printing machine. His death followed a stroke of apoplexy. His son, Alexander MacNicol, succeeds him in business.

N. E. Nelson of the Nelson Bros. Knitting Mills, Duluth, Minn., met with an automobile accident about twenty-five miles out of Minneapolis on June 2 and was instantly killed. Mr. Nelson was born in Denmark in 1861 and began the manufacture of knit goods about thirty years ago. In 1892 he disposed of his business and came to the United States and in the spring of 1899 he established a mill in Duluth with Anton Nelson, a junior brother. Christ Nelson, of Minneapolis, Western representative for the Grosser Knitting Machine Co., is another brother. The funeral was held from his home in Duluth on June 5.

Charles B. Shaw, 74 years of age, and well known in the State of Rhode Island, being president of the Bradford Dyers' Association of Bradford, Eng., who have large interests in Bradford, R. I., died at Shipley, Yorkshire, Eng. Until about two years ago he was senior partner for Shaw Bros., Midland Dye Works, Shipley, Yorkshire, Eng.

Henry Schnapper, who operated the Van Buren Knitting Co. at Kinderhook, N. Y., manufacturing fancy knit goods, died at his home in that city at the age of 50 years. His widow and one daughter survive him.

John E. Bolton, one of the best known inventors of silk dyeing machinery and also a silk dyer who was one of the oldest past masters of any Masonic Lodge in the State of New Jersey and possibly the United States, died at his home in Paterson, N. J., after an illness of one month, at the age of 89 years. He was born in Bolton, Lancashire, Eng., in 1826 and came to this country when a boy. Soon after he took up his residence

in Paterson and when a young man followed the cotton dyeing trade. Was afterwards manager of the Scott Print Works and the Adams Cotton Co. After the cotton business gradually disappeared from Paterson, he took up the art of silk dyeing and finishing.

Robert H. Crowell, manager of the Climax Yarn Co., Providence, R. I., died at his home in that city after an attack of hemorrhage of the brain at the age of 52 years. He was a well known manufacturer and had been in the mercerizing business for a number of years. For ten years he was agent of the Rhode Island Processing Co. of Providence, and in younger years was at the Hampton Co. of Easthampton, Mass.

Edward Waldron Ballow died June 15 of Bright's disease after a long illness at the age of 44 years. He was a manufacturer of braids and head of the firm of Edward W. Ballow & Co. of Manhattan, N. Y. His wife, one daughter and two brothers survive him.

Thomas Dolan, one of the wealthiest men of Philadelphia, Pa., and who was a manufacturer of woolen goods for a number of years, died at his home in that city at the age of 82 years.

Fred Oliver, formerly overseer of the full fashioned knitting department at the Sulloway Mills, Franklin Falls, N. H., died at his home in Northampton, Mass.

Ashley P. Hunter, president, treasurer and manager of the Norristown Woolen Co., Norristown, Pa., died at his home in that city at the age of 60 years.

William A. Walton, who operated the Wood River Mills Co. of Wood River Junction, R. I., for a number of years, also connected with the Weybosset Mills of Providence, R. I., for a number of years and president of the Smith Webbing Co., Pawtucket, R. I., died at Providence at the age of 82 years. He was born in England and came to this country when a young man. He had been connected with mills in Delaware, Massachusetts, Connecticut and Rhode Island.

FACTS AND GOSSIP.

Alabama, Irondale. W. J. Mitchell, formerly of Fort Payne, Ala., expects to establish a knitting plant here before the first of October. Mr. Mitchell's address is R. F. D. 1, Irondale, Ala.

California, Los Angeles. The M. Guenther Knitting Company has been incorporated with capital stock of $10,000 to manufacture knit goods. A knitting factory is operated at 3504 S. Park Ave., and the product is sold at retail at 905 S. Broadway. Sweaters are manufactured.

Delaware, Newcastle. The secretary of the Board of Health, Mr. Cramer, is obtaining the names of girls who can be secured as employes for a proposed knitting mill which is willing to come to Newcastle provided 125 employes can be secured. The prospects at present for securing the industry are disappointing.

*Illinois, Chicago. The Newport Ventilated Underwear Company, recently incorporated with capital stock of $15,000, has organized with George W. Kelly, president and treasurer; S. C. Kelly, vice-president; and Guy Guernsey, secretary. George W. Kelly formerly sold the product of the Cooper Underwear Company and has been successfully identified with the underwear business for many years. An office has been opened in the Republic Bldg.

*Maine, Lewiston. Laurendeau Bros., shoe dealers at 282 Lisbon St., are now operating six knitting machines and two sewing machines on wool stockings, using 4/13, 4/14, 3/14 and 3/16 yarns. The product is sold direct. They would like to buy woolen yarns on cones.

Massachusetts, Boston. It is reported that a new Massachusetts corporation is to be formed under the name of the Oneida Knitting Company to which certain assets of the present Oneida Regal Company will be transferred. Holders of Oneida Regal preferred stock will receive 110 per cent. of the par value of their holdings and $3.50 per share in cash. The new Oneida Knitting Company will have a capitalization of $600,000 seven per cent. cumulative preferred stock, $150,000 first mortgage six per cent. bonds and $150,000 common stock.

Minnesota, Duluth. The operation of the Nelson Bros. Knitting Mills will be continued uninterrupted by Anton Nelson, as provided in the will of the late N. E. Nelson. The business was started in 1899 by N. E. Nelson and Anton Nelson and is soundly established, having enough orders on hand at present to keep the plant busy until the end of the season. As noted in another part of this issue N. E. Nelson was killed in an automobile accident on June 2, being crushed under his car.

New York, Gloversville. A charter has been granted F. A. Rupert Company, Inc., with capital stock of $25,000 to manufacture mittens, gloves and garments. The incorporators are Albert and Abner Steele, and Frank A. Rupert, of Gloversville.

New York, New York City. The S. & W. Knitting Mills, Inc., have been granted a charter with capital stock of $2,000 to manufacture sweaters and other knit goods. The incorporators are Berco Levow, 1420 Madison Ave., and Louis Josephson, 244 E. Houston St., N. Y.

New York, Niagara Falls. The plant of the Cataract Knitting Company, Inc., a small sweater manufacturing concern with an output of twenty-five or thirty dozen sweaters a week, is being offered for sale.

New York, Oriskany Falls. Land adjoining the plant of the Utica Knitting Mills has been bought by the company for $500.

Ohio, Cincinnati. The Adler Underwear & Hosiery Mfg. Company deny the report that they will build an addition on the land adjoining their plant which was recently purchased.

*Ohio, Elyria. Details of the Elyria Knitting Company, recently reported incorporated with capital stock of $10,000, have not been given out. J. C. Hill, treasurer of the Fay Stocking Company here, is one of the incorporators and it is rumored that the new company has been formed for the purpose of manufacturing a branch line of the Fay Company.

Pennsylvania, Honesdale. It is reported that a new knitting plant is to be established here. As noted in May the Southard Knitting Company, of Walton, N. Y., is considering Honesdale as a new location for its plant.

*Pennsylvania, Jonestown. The Jonestown Hosiery Mills, whose building was recently condemned as unsafe, expect to move from Jonestown in the near future. Several possible locations are being considered, but a decision has not been reached. They state that they have employed all the help available in Jonestown and that one of their reasons for moving is to find a better supply of help. Men's cotton hosiery is manufactured. Howard C. Runyeon is manager and buyer.

Pennsylvania, Newcastle. An option on a building on South Mill St., formerly occupied by the Standard Wire Company, has been secured by men interested in a new hosiery mill project. It is planned to establish a $75,000 plant, of which $40,000 is said to have been subscribed. If the building on South Mill St. is occupied it will be necessary to build an addition to be used as a dye house.

Pennsylvania, Philadelphia. A charter has just been issued to the Commonwealth Knitting Co., with a capital of $25,000. This concern, which is manufacturing a line of seamless hosiery, a report of which was recently made by us, is located at the S. E. corner of Mascher and Jefferson Sts., where they are operating a plant under the management of Harry Sarfert.

Pennsylvania, Philadelphia. The Roxford Knitting Co., denying a report recently made in some of the textile publications that they have filed papers of incorporation in the State of California, report that having offices in that State they have simply registered as a foreign corporation doing business in that State, for the purpose of carrying on their operations as heretofore. They are manufacturers of men's and boys' cotton flat and ribbed underwear and union suits operating 300 knitting machines and 450 sewing machines, their plant being located at Jefferson and Randolph Sts.

Pennsylvania, Reading. C. E. Smith, president and treasurer of the Reading Underwear Company reports business brisk and states that the knitting machinery is running night and day. An order for summer underwear has been received from Australia.

*Pennsylvania, Soudertown. A charter has been granted M. B. Bergey Company, to take over and operate the plan of M. B. Bergey & Company, with capital stock of $25,000. The plant contains 60 knitters, 15 ribbers and 12 loopers operating on men's and women's seamless hosiery. The product is sold direct.

*Rhode Island, Providence. There is no connection between the New England Knitting Company, recently organized as reported, and the Narragansett Hosiery Company, organized four years ago and manufacturing high grade hosiery for men at 289 Thurber Ave., although the new concern is to locate in another section of the building in which the plant of the Narragansett Hosiery Company is located.

South Carolina, Blacksburg. A company has been organized under the name of the Volunteer Knitting Mill with capital stock of $4,000 by J. G. Sapoch, Charles Baber, and P. T. Camp.

South Carolina, Greenwood. Current reports stating that the Greenwood Cotton Mills have ordered 2,500 additional spindles which are to be installed at once, are erroneous.

South Carolina, Greenville. All the mills of the Parker Cotton Mills Company and its affiliated companies will close July 31 and remain closed until August 10. This closing is chiefly to give the employes a vacation and no extensive repairs or changes will be made in the plants.

South Carolina, Wellford. At the sale of the plant of the Wellford Mfg. Company by the receiver, H. M. Cleveland, the property was bought by Alfred Moore. The mill has not been started up as yet but in all probability will be operated again.

West Virginia, Barnesville. The Barnesville Mfg. Company has been incorporated with capital stock of $100,000 by J. M. Hartley, C. E. Smith, G. W. Mack, and others. Messrs. Hartley and Mack are president and treasurer, respectively, of the Barnesville Mfg. Company, manufacturers of flannels, blankets and other wool goods here, and it is understood that the new corporation takes over this business, which recently has been greatly enlarged. The post office address is Fairmont.

Wisconsin, Beloit. It is reported locally that the United States Linen Company is to increase its plant about 200 per cent. This business has been conducted on an experimental basis, manufacturing linen goods from native grown fiber on equipment of two cards, 1,000 spindles and 50 looms. The plant was shut down a month or two ago. Charles H. Gorton, the manager, is quoted as stating that the present plant was never expected to make money, as the unit is too small and it was equipped primarily for demonstration purposes. The men behind the concern desired actually to learn what could be accomplished with the process under which the plant worked. These men are now perfectly satisfied that with a larger unit the business can be conducted successfully and made very attractive for capital. According to Mr. Gorton the business can be carried on with the present equipment at a small profit and when the stock of goods on hand now is consumed the plant will be reopened and later on a factory double the size of the present plant will be built.

Wyoming, Black River. It is reported that F. C. Bosler, Mr. Pierce and others will build a woolen mill here for the manufacture of blankets and sweaters, employing about 150 hands.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.

Analysis of Woven Fabrics; by A. F. Barker, M. Sc., and E. Midgley; 302 pages, 5 by 8 1/2; Scott, Greenwood & Son, London, Eng.

This book is in reality a new work, although Prof. Barker evidently looks on it as a development of his "Pattern Analysis," published twenty years ago. There is, however, but little in the present volume, outside of the title and author's name, to remind the reader of the earlier production. The new work deals with raw materials, yarn, cloth construction and analysis, weave analysis, the effects of dyeing and finishing on woven fabrics, and estimating the cost of cloth. To these subjects are added price lists for weaving in the various textile centers of England, and a glossary of terms applied to woven goods, the contents being arranged under the following heads: Qualities of Raw Materials; Qualities of Yarns; Calculations Relating to Yarns; Calculations Relating to the Weights of Cloths; Setts and Setting of Cloths; Weave Analysis; Drafts and Pegging Plans; Effects of Dyeing and Finishing of Wool Cloths; Effects of Dyeing and Finishing on Union Dress Fabrics, Lining, and Cotton Cloths; Obtaining the Loom Particulars from a Small Sample of Finished Cloth; Examples in the Analysis of Woven Fabrics; Quick Methods of Analysis, Standard Weights and Gauges; Qualitative and Quantitative Analysis of Fibers in Woven Fabrics; The Costing of Woven Fabrics; Definitions. The book is of unquestionable value to the weaver, designer and manufacturer of wool goods, giving as it does much useful information on all the topics mentioned above. It would, however, have been of far greater value as a handbook for the mill if simplicity and brevity had been made more prominent features. Many parts of the book indicate that the authors found it hard to drop a problem after having given the solution. This is all the more surprising because they tell the reader that "the analyst should work upon the basis that 'that which is not best is wrong' ". Not content with a clear explanation of what the authors think is the best method of calculation, they weary and confuse the reader with detailed explanations of several alternative methods of reaching the same result. Moreover the best method of cloth analysis is conspicuous by its absence. This may be due, in part at least, to the narrow scope of the work, dealing as it does, chiefly with woolens and worsteds. A system of cloth analysis and calculation should be based on the principles underlying these problems in all branches of the industry. Prof. Barker leads us to expect this broad treatment of the subject, when he tells us that "the present treatise may be regarded as a further step towards the more perfect application of scientific method, ensuring that scientific attribute 'prevision' in the Textile Industries," but the volume does not come up to the standard set in the preface. "That which is not best" in textile calculation and analysis is certain to result from too close an adherence to the textile standards of Bradford, Huddersfield, Leeds and Galashiels. The best is not to be found within such narrow limits. If the authors of this Yorkshire treatise had extended their vision to Lancashire and the United States, they would have found in the world standard for cotton and the American run standard for woolen, the basis for the best in textile analysis and calculations, and, by making these standards the basis for their system, would have done much to bring about a realization of this hope expressed by Prof. Barker in the preface:—"The authors offer it as such (a further step in the application of the scientific method), and at the same time express the hope that it may be made the basis for further excursions into yet unexplored fields, and that such explorations may result in a still further extension of the field of knowledge, in a more perfect command of the recognized methods, and in that control of results which alone can lead to lasting success."

Textile Soaps and Oils; by G. H. Hurst; second edition revised by W. H. Simmons; 184 pages, 5 1/2 by 8 1/2; Scott, Greenwood & Sons, 8 Broadway, London, E. C., England.

This book was first published ten years ago and has served as a valuable handbook for the textile trade, giving information that manufacturers, managers and overseers required regarding textile soaps and oils. The progress in chemistry and the soap and oil industries has made it necessary to revise the work and the present volume is the result. It has been revised and partly rewritten by W. H. Simmons, a lecturer at the Battersea Polytechnic and author of books on soaps and oils. The contents are arranged under the following heads: Methods of Making Soap, Special Textile Soaps, Animal and Vegetable Oils and Fats, Textile Oils.

Patents for Designs; by William L. Symons, LL. M.; 134 pages, 6 3/4 by 9; John Byrne & Co., Washington, D. C. Price $3.

The material for this volume was obtained from the lectures on patent trade mark law delivered before the Washington College of Law. The scope of the work is shown by the following abstract of the table of contents: Subject Matter for Design Patent, Invention, Novelty and Infringement, Applications and Letters Patent, Procedure in the Patent Office.

Spinners' and Twisters' Handbook (Spinners und Zwirners Berather); by Otto Holtzhausen; 125 pages, 5 by 7 1/2; Leipziger Monatscrift fuer Textil-Industrie; Leipzig, Germany. Price $1.25.

This book contains a large amount of information required by overseers, of spinning and twisting in German cotton mills. It begins with an account of the English system of yarn numbering, which is the cotton standard for Germany as well as for the rest of the world except France. This

is followed by a chapter on the metric system of numbering yarn which the Germans have tried hard to introduce into the cotton industry. Their efforts have failed and the result is a confusion of the English system with the metric weights and measures. This book illustrates the burden that the German industry is carrying because of this mix-up. After an explanation of yarn numbering the contents of the book are arranged under the following heads: Twist Calculation, Change of Length by Twisting, Wet Twisting, Constants, Conditioning Textile Materials, Strength and Elasticity of Yarn, the Production of Spinning and Twisting Machines, Reeling Yarn, Production in Twisting and Doubling, Useful Tables. The text is in German.

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Handy Atlas of the World; L. L. Poates Publishing Co., New York, N. Y. Price, 50 cents in cloth; $1.00 in leather.

L. L. Poates Publishing Co. has published a small handy atlas which contains maps of the United States and each of its 48 states, territories and insular possessions, the Dominion of Canada and each of its separate provinces, and maps of all the foreign countries. There is also a list of the principal cities and towns of the United States, giving their population. The book is of handy size for desk or table.

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Engineers Hand-Book; edited by Willis H. Carrier, chief engineer; 581 pages, 4 by 6 1/2; The Buffalo (N. Y.) Forge Co. Price, $3.

This is a convenient hand-book of fans, heaters and similar apparatus, the work having been confined to the use, design and application of fan system apparatus for heating. ventilating, mechanical draft, drying, humidifying, special exhaust and blow pipe systems. The scope of the book is indicated by the following abstract of the table of contents: Part I. Properties of air, weight, specific heat, relation of velocity to pressure, temperature, humidity and barometric pressure, dry bulb and wet bulb, psychrometric tables, etc. Part II. Applications, heating, ventilation, air washing, cooling and humidifying, drying, mechanical draft exhaust systems, miscellaneous applications. Part III. Air ducts, pressure losses, nozzle effects, blast area, proportioning piping, friction of ducts, piping layouts. Part IV. Apparatus. Section 1. Fans, their design, characteristics, types, horse power and pressure, selection of fans. Section 2. Fan Testing. Section 3. Fan Capacities. Section 4. Fan Dimensions. Section 5. Heaters. Section 6. Air Conditioning Apparatus. Section 7. Engines. Section 8. Practical applications and data for selection of apparatus. Part V. Appendix, Specifications, Miscellaneous Data and Index.

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The Franklin Cotton Mills, Concord, N. C., will add to its electric drive equipment five 20 h. p. motors with auto switches and a switchboard which have been ordered from the General Electric Company.

BUSINESS LITERATURE

Centrifugal Fire Pumps; The Goulds Mfg. Co., Seneca Falls, N. Y.

A 12-page pamphlet describing and illustrating the Goulds centrifugal fire pump. Because of the many desirable characteristics of this pump for fire service, the Underwriters have made a special study of the type and have issued specifications covering the features the pump must have to meet their requirements. The pamphlet also contains tables of effective fire streams, pressure of water at different heads, friction loss in pounds and loss of head in feet due to friction.

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Textile Scales; The Torsion Balance Co., Jersey City, N. J.

An illustrated pamphlet describing the various textile scales manufactured by this company. These include the following: Scales used to determine the exact weight in ounces, or grammes of a running yarn or meter of cloth of any width, the weight being accurately ascertained without calculation or the use of weights; scales to determine the number of yards per pound of fabric of any width; to determine the count of cotton yarn without calculation or use of weight; calculating hosiery scale; scale for weighting small quantities of dyestuffs. Included with these scales is a folding case and wind shield.

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Special Copper Lined Size Vat for Slashers; the Saco-Lowell Shops, Lowell, Mass.

A pamphlet describing and illustrating a copper lined size vat. This equipment consists of seamless copper size rolls, positively driven brass immersion roll, solid or hollow iron squeeze rolls, and perforated brass heating pipe. This vat is built especially for delicate colors or bleached work.

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"Renewo" Valves; The Lunkenheimer Co., Cincinnati, O.

A booklet describing and illustrating the Lunkenheimer "Renewo" valve, a valve which embodies all the desirable features disclosed by over half a century of valve manufacture. It is a regrinding valve, adapted for high pressure. All parts are renewable, including the seat and disc, which are subjected to the greatest wear and made of a high nickel alloy.

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The Thorndike Co., Thorndike, Mass., will install electric drive equipment consisting of a 100 k. w. A. C. generator, two 15 k. w. transformers, a 125 volt Tirrill regulator and switchboard, the order for the apparatus having been placed with the General Electric Company.

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The Henderson Cotton Mills, Henderson, N. C., will add to the equipment of its mills for electric drive 14 motors ranging from 7 1/2 to 100 h. p. with oil switches and a switchboard, the order for which has been placed with the General Electric Company.

Industrial Notes

LARGE HUMIDIFIER ORDER

The Fall River Iron Works, Fall River, Mass., has recently placed an order for equipping their No. 7 weaving mill with Turbo-humidifiers manufactured and installed by G. M. Parks Co., of Fitchburg, Mass. They will install over 300 sprinkler heads. The Fall River Iron Works is one of the mills that is taking advantage of the comparatively dull summer months to make improvements in their plant.

FRENCH WORSTED YARN

Max Riedel, 229 Fourth Ave., New York City, sole representative for the Kammgarn Spinnerei Kaiserslautern, Germany, has opened up a branch office for the sale of their product consisting of high grade French spun worsted yarns in all counts at 33 S. Front St., Philadelphia. Chas. E. Weber, who is well known to the trade, has been appointed manager of the yarn department.

THE TEXTILE EXHIBITORS' ASSOCIATION

The date and place for the next National Textile Exhibition was not determined upon at the annual meeting of the Textile Exhibitors' Association Inc., which was held at Ferncroft Inn, Monday, June 8. The city of Atlanta is making a strong bid for the exhibition. A petition containing the names of several hundred Southern cotton manufacturers was read at the meeting, but the directors left the matter open for further investigation by Secretary Chester I. Campbell.

F. H. Bishop, of the Universal Winding Co., was reelected president; E. F. Hathaway, American Warp Drawing Co., vice-president, and Chester I. Campbell, secretary-treasurer. The directors elected were C. P. Erhard, Stafford Co.; C. F. Hutchins, Crompton & Knowles; L. E. Tracy, L. E. Tracy Co.; C. A. Chase, General Electric Co.; L. W. Campbell, Woonsocket Machine & Press Co.; E. H. Rooney, Whitin Machine Co.; F. H. Bishop, E. F. Hathaway and Chester I. Campbell.

The reports of the various committees showed the association to be in a flourishing condition. The report on the fourth exhibition was enthusiastically received. It showed that the exhibition was a financial success and that the exhibitors to a man reported that the show proved to be a great stimulant of sales. Following the business meeting dinner was served and a general good time indulged in.

AMERICAN COTTON WASTE EXCHANGE

The rooms of the American Cotton Waste Exchange at 200 Summer St. are now furnished and were opened at the regular meeting which took place on Wednesday, July 1, at 11 a. m. At this meeting two members of the executive committee were elected.

PERFORATED PLATES FOR TEXTILE USE

The Beckley Perforating Co., of Garwood, N. J., which for years have been well known as manufacturers of perforated copper and bronze plates for wool washing, scouring and carbonizing, have recently increased their plant by the installation of a large amount of the most modern machinery used in the perforated metal trade. They have also added a large fireproof storehouse to their present splendidly equipped plant.

The Beckley Perforating Co. was one of the pioneers in this industry, which had its origin in 1868, when perforated metal began to take the place of wire-cloth for screening purposes of every description. Today perforated metal has gradually superseded wire-cloth in almost every branch of the washing, grading and sizing industries, the perforated metal being much more uniform in the size of holes, and less liable to wear or rust out. These plates, which are made in all sizes, are easily repaired in case of breakage, without affecting the entire sheet, while in the case of wire-cloth a break in the strand of the wire extends over the whole sheet, changing the mesh and making it unfit for further use. Perforated metal is also superior in that it presents a perfectly smooth surface, allowing material to pass over it unobstructed and not as liable to become clogged.

There has been rapid strides in the process of manufacturing the plates now so much in use in wool washing and scouring, and considerable experiments have been made with a view to obtaining the most serviceable and rust resisting apparatus. Heretofore copper and bronze to a considerable extent answered this purpose, but today the Beckley Perforating Co. are offering an improved perforated plate, made of a mixture of copper and nickle steel, which has found much favor among the wool washers and scourers of New England and Philadelphia. The process of manufacturing these plates has been no less marked, and has resulted greatly in the cheapening of the material to the user. In the earlier stages of manufacture foot-power was employed to make the perforations; the goods thus made proved such a success that the demand became so overwhelming, that improved machinery was constantly being brought out, to replace the earlier and cruder methods, and this company easily recalls the time when only three plates 39 inches wide and about 50 inches long could be punched in one day. But their engineering department being very much alive and as eager as any of the consumers to reduce the cost of manufacture, were soon able to perfect a press that would perforate 50 plates a day, each plate have 15,500 holes. This was considered a great achievement, but today the machinery employed in the manufacture of this class of goods, by means of multiple punches can simultaneously perforate a sheet 4 feet wide, as it passes through a pair of rolls moving at remarkable speed.

The products of this plant cover many fields other than the wool washing trade. The goods being used wherever the screening, grading or classifying of material is required, and the demand for the company's products have been

greatly in excess of the capacity of its works, even when operated under the most favorable conditions. To meet this demand the present increase in machinery and plant is being rushed to completion.

COTTON GROWING IN ITALIAN NORTH AFRICA

From an Italian Government Report

Translated by American Consul W. R. Rhodes, Tripoli

The Society for the Cultivation of Cotton in Eritrea has started some culture experiments in Tripoli to study the adaptability of various types of cotton to the soil of the oases. The trials were conducted on nearly 7 1/2 acres, planted with Russells and Allens, herbaceous American varieties from Florida; the first is very early and will give two crops a year; the second is less forward, has more branches, and is very productive.

Planting was made in November, 1912, with seed disinfected with lysoform, but the winter cold killed the young plants and it was necessary to replant at the beginning of the following June. The harvest from this planting was begun in the second half of October, and completed in three pickings, with intervals of 15 days.

The plants were irrigated six times during the summer in conformity with the Arab custom, the ground having been previously subdivided into small plats. The ground was not manured, as it had been planted to green crops.

No disease attacked the plants. The harvest was abundant and of excellent quality, the fiber of the Allens attaining an average length of 18 millimeters and a maximum of 22 millimeters (7/10 and 87/100 inch, respectively). The best results were obtained with the Mebane of the Mississippi, with respect both to quantity and quality of fiber, the length of which attained 38 millimeters (1 1/2 inches). Not so much can be said of the Willets variety, which was grown with little irrigation—only once or twice during the sprouting period. Many young plants died, others survived only where they were grown among watermelons whose abundant foliage no doubt protected the young plants from the sun's heat and conserved the moisture in the ground. It was not possible to have exact data, but the society asserts that there was a fair margin of profit.

During 1914 the experiments will be repeated in the various seasons. Nonirrigation outside the oases will be tried with selected Mebane seed.

The few cotton plants that are cultivated in the oases by the natives belong to the herbaceous variety which assumed the dwarf-tree form. They are constantly irrigated, but it is thought that owing to their robustness and woody condition they could live tolerably well without irrigation in those lands that retain a certain amount of moisture in the subsoil. This is shown by some existing examples in the gardens of Tripoli that have been abandoned and left to themselves for more than two years.

Rhode Island, Harrisville. The strike at the Stillwater Worsted Company's mill has been settled and the employes have gone back to work.

GROSSER KNITTING MACHINE CO.

The "Domestic Department" of the Grosser Knitting Machine Company will be located after July 1st, at 109-113 S. 5th St., Brooklyn, N. Y., where a "sunshine floor" with over 6,000 square feet of available manufacturing space has been leased from the Gretsch Realty Co. There is ample space to locate tools and machines to best advantage and their mechanics will work under most favorable conditions, which will be reflected in still better work and more careful finish of the various types of power attachments for hand knitting machines. Compactness, simplicity in construction and accessibility of all parts are the important features of their power drive and assure continuous correct working and low upkeep. The automatic functions are positive, chain setting is made as easy as possible and the cost of pattern chains reduced to a minimum so that the saving in upkeep more than offsets the difference in original cost that might exist compared with inferior attachments.

A SPECIALIST IN ERECTING AND MOVING MACHINERY

When they have had in contemplation the installation of new machinery or the taking down of their old appliances for the purpose of making changes in their plants or removing to larger or other quarters, textile manufacturers have not always known where to secure the services of men skilled in this line of work. Michael Kerwin, 439 N. 53rd St., Philadelphia, is one of the few men engaged in this occupation making a specialty of erecting, lining, leveling, packing, shipping and dismantling textile machinery of all kinds, and especially those machines used in cotton, woolen, worsted, silk and flax spinning mills located in any section of the country. Mr. Kerwin has had a long and varied experience in this line of work, having been in the worsted trade from boyhood up to the present time. This is his specialty, as he is well versed not only in erecting worsted machinery of all kinds, but in their operation from the scouring of the raw wool to the finished yarn, as well as being a practical machinist.

E. W. Alderman, an experienced refrigerating engineer who has been connected with the Vilter Manufacturing Company for a good many years has been appointed manager of the Pittsburg district and will have his headquarters at 314 Curry Building, Pittsburg, Pa. He succeeds H. W. Loecher, who has been transferred and will be located at the main office in Milwaukee. Mr. Alderman is well prepared to serve the trade in that territory and with the exceptional facilities of the Vilter Manufacturing Company for turning out any machinery or equipment required for ice making or refrigerating plants the trade is assured prompt and efficient service.

South Carolina, Batesville. The Prospect Mills of Batesville have been incorporated with capital stock of $25,000 by MacMillan B. King and others.

JAPANESE MOUSSELINE, WOOL WEAVING AND COTTON YARN

Consul George N. West, Kobe

All industries in Japan are at present suffering from overproduction. Owing to the high prices of raw material, several minor industries, such as those making paper lanterns and other articles for decoration for use during the expected coronation of the Emperor in November of this year, have suffered severely, as the coronation of the Emperor has been postponed for a year, owing to the death of the Empress Dowager. Many manufacturers of small means who had produced a large quantity of such articles find no sale for them at present.

The woolen goods industry is especially experiencing the bad effects of overproduction, and market prices in consequence are declining. This is a result of the general trade depression. The difficulties of the mousseline weavers are most noticeable; quotations are going down, while the price of wool has been steadily advancing. The representatives of the mousseline companies, which recently agreed to reduce their output by 30 per cent. from June 1, finally held a meeting at Osaka to consider further measures for the maintenance of prices for their goods. After protracted discussion it was agreed to reduce the output by 50 per cent. The resolution adopted at the Osaka conference has thus far had no effect on the market. Mousseline is now ruling at 14 or 14 1/2 cents a yard, which means a loss of 1 1/2 or 2 cents per yard to each mill. A further conference is to be held in Tokyo to consider a proposal to increase the price to about 16 1/2 cents and to form a combination for controlling sales in order to force higher prices .

The wool-weaving industry, which has made rapid progress of late years, is now suffering from the effects of the excessive factory extension. All the weave mills are experiencing great difficulty in disposing of their large stocks. Weavers of serges, which have made more rapid headway than other branches of the industry, have succeeded in largely checking the import of this cloth. The sale of summer goods is now at its height, and weavers are sending to their customers larger lots than actually ordered in the form of consignment sales in order to dispose of the stocks glutting their godowns. When such methods are resorted to with serges, which always find comparatively good sale, the depression in the market of other woolen goods may be imagined. The output of serges so far this year in Japan is known to be about 20 per cent. more than last year, and it is believed that the serge production has now reached its highest point. When more attention is paid to designs and finishing, the import of serges will be entirely checked, but the woolen cloth produced in Japan can not successfully compete with imported goods unless determined efforts are made by weavers for the improvement of quality. If they continue to produce cloth of only one quality the result will be merely to depress the market. The Japanese wool weavers' difficulty is that while the cloth market is poor the wool market is very high. The present high price of wool is not the result of speculation, but is due to the drought in Australia, and it is feared that prices will go still higher in view of the relative supply and demand in the world's markets. The stock of wool held by the mills in Japan is small, and they are compelled to use wool sold at high prices at a time when their operations are hardly paying expenses. The wool-weaving industry in Japan, which began to gain ground after the revision of the customs tariff, has encountered a serious difficulty which impedes its further progress, and the industry is about to enter upon a period of much needed readjustment.

The cotton yarn market is still in an unsatisfactory condition. The decline in quotations on the Osaka Yarn Exchange for this month's delivery has been checked, but quotations for June and July are weaker. The tone of the spot market is also weaker, and the coarse Kanegafuchi yarns are now quoted at the low rate of $52.79 (per 400-pound bale)—the lowest price on record. The decline in coarse yarn is only to be expected in view of the conditions of supply and demand, but it has brought down the market of all qualities in general. Gassed yarn, which was maintained at over $119.52 early this month, was quoted on Wednesday at $112.04, the lowest figure on record. The Pheasant brand of 42s was quoted at about $94.12, a decline of some $7.97 as compared with the rate ruling some time ago, and the 32s of Godo yarn dropped to about $92.62. A corresponding decline was shown in all other districts.

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FEATHERIZED TICKINGS

The J. A. Moseley department, of Frederick Vietor & Achelis, is showing one of the most curious examples of old tickings that has ever been seen in this market. The cloth was made fifty to sixty years ago at the Eagle & Phoenix Mills, Columbus, Ga., whose product is still being sold in the market by the J. A. Moseley department and whose looms run largely on several well-known brands of tickings today.

The face of the fabric is the standard indigo dyed ticking in about an eight-ounce weight; the reverse side is faced up with a down-like texture unlike anything sold in the market. This peculiar texture was brought about by the ticking covering feathers for many years, and the goods being featherproof, the small fibers have held in on the lower side making a sort of duvetyn texture. A sample of this fabric can be seen at the office of J. A. Moseley, 65 Leonard St., and is well worth looking at.—The Journal of Commerce.

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The Chemical Products Company, organized in 1902, and now managed by Arthur D. Little, Inc., to develop applications of cellulose acetate, has paid 8 per cent. on preferred since its organization, and has recently declared 30 per cent. on its common stock. The Mansfield Company, under the same management, is now erecting a plant at Mansfield, Mass., for the manufacture of waterproof paper for case linings.

THE TARIFF AND THE COST OF TEXTILES

From Report of First National Bank, Boston

In view of the fact that the framers of the new tariff law expected to reduce the cost of living by removing or lowering drastically the duty on textile products, it is interesting to know to what extent the cost of living has in the past been affected by textile products, a factor which is now made understandable by a study of relative commodity prices of all commodities, including farm products and textiles, covering the 22-year period between 1890 and 1912, a price compilation recently announced by the government.

The greatest increase shown in the prices of all commodities was shown in 1912 over 1897, amounting to 48.9 per cent. The smallest increase was shown in 1912 over 1910, amounting to 1.5 per cent. No year under comparison failed to show an increase.

The greatest increase shown in the prices of farm products was shown in 1912 over 1896, amounting to 118.8 per cent. The smallest increase was shown in 1912 over 1910, amounting to 4.1 per cent. No year under comparison failed to show an increase.

The greatest increase shown in the prices of textile products was shown in 1912 over 1897, amounting, however, to only 32.5 per cent. The smallest increase shown was in 1912 over 1906, amounting to only .6 per cent. In two instances, 1912 over 1910 and 1907, textile prices recorded actual and fairly substantial decreases. Thus the rise in price of textile products has been less than the rise either in general commodities or farm products, while textile products are the only commodities of the three groups showing a decline in any year. The comparisons are of course limited to actual prices, and take no account of improvements in the quality of textile products or the increases in labor costs in the 22-year period.

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A BIG SHIPMENT OF BALL BEARING HANGERS

The Hess-Bright Manufacturing Co. of Philadelphia has sent out what it believes is one of the biggest single shipments of ball bearing hangers ever made. It consists of 57 Hess-Bright Ball Bearing Hangers—all going to one of the largest manufacturing concerns in this country.

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The Arabol Mfg. Co. of 100 William St., New York City, N. Y., the well-known makers of soluble oils, alizarine assistant, sizing and finishing compounds and other staples which have made them so popular with textile manufacturers, has again been compelled by the increase of business to enlarge its offices. They have done so by taking almost the entire fourth floor of the Woodbridge Building Annex. By breaking through connecting walls they have more than doubled their floor space and are enabled to bring all administration departments together. Their Printing and Publicity Departments also enjoy very commodious quarters.

BUSINESS CONDITIONS

"While business is generally up to expectations, there are certain sections of the country that are exceeding our rosiest hopes," says President George A. Kissel of the KisselKar. Milwaukee, Boston and Minneapolis have made great gains over last year, while the entire East and Northwest have sold more than their allotment of cars all along the line. There are bad spots here and there, but an increased foreign trade has offset them. With a bumper crop certain 'psychological conditions' should improve and then nothing can stop us."

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In spite of the prevailing dull conditions, the Terry Steam Turbine Co., of Hartford, Conn., is doing the largest business in its history and has ordered increased equipment which will increase the capacity of their plant approximately 25 per cent.

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ORDERS FOR GENERAL ELECTRIC CO.'S PRODUCTS

The General Electric Co. report the following orders recently received for installations in textile mills:

The Beacon Mfg. Co., New Bedford, Mass., has arranged to install new apparatus for direct connected electric drive and has ordered 278 small motors.

The Arlington Mills, Lawrence, Mass., are adding to their electric drive equipment six induction motors with compensators.

The Cyril Johnson Woolen Co., Stafford Springs, Conn., will install new electric drive equipment, synchronous motor, ten smaller motors and a switchboard.

The Lawrence Dye Works, Lawrence, Mass., will add to the equipment of its power plant an engine driven alternating current generator.

The Crompton & Knowles Loom Works, Worcester, Mass., will add to its equipment for direct connected electric drive 100 small motors and accessories.

The Whittenton Mfg. Co., Taunton, Mass., has arranged to place in operation in its mills electric drive equipment consisting of a Curtis turbo-generator with exciter, generator, fifty-one motors for power distribution throughout the mills, switchboard, oil switches and accessories.

The Fall River Bleachery, Fall River, Mass., will place in operation in its power plant a 1000 k. w. Curtis turbo-generator with 25 k. w. exciter, switchboard and accessories.

The Renfrew Mfg. Co., Adams, Mass., recently ordered three transformers, a 5-panel switchboard and accessories.

The Profile Cotton Mills, Jacksonville, Ala., will add to its equipment for direct connected electric drive sixty motors and accessories.

The Savage Mfg. Co., Savage, Md., has arranged to install electric drive equipment which includes a Curtis turbo-generator, turbo-exciter and motor-generator exciter, a waterwheel driven generator, a transformer, twenty-five induction

motors for power distribution throughout the mills, switchboard and accessories.

The Selma Cotton Mills, Selma, N. C., will add electric drive apparatus to the equipment of their mills which will include nine induction motors and a transformer.

The Windsor Print Works, North Adams, Mass., will install five additional motors with accessories for electric drive.

The Dudley Mills Co., Worcester, Mass., has arranged to install for direct connected electric drive 43 motors of small capacity with switches and accessories.

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The American Woolen Co., Skowhegan, Me., will install 75 h. p. and 150 h. p. motors which have been purchased from the General Electric Company.

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The Burlington Mills, Winooski, Vt., will add two 150 h. p. motors to its equipment and has purchased them from the General Electric Company.

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The Hannah Pickett Mills, Hookington, N. C., will place in operation for electric drive in its mills 38 new motors ranging from 3 to 20 h. p., the order for all of which has been placed with the General Electric Company.

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The Merrimack Mfg. Co., Lowell, Mass., will add to its electric drive equipment by the installation of four motors of 15, 25, 35 and 100 h. p. respectively, all of which have been ordered from the General Electric Company.

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S. Sanford & Sons, Inc., Amsterdam, N. Y., have arranged to install for electric drive in their mill 68 additional motors ranging from 5 to 35 h. p., all of which have been ordered from the General Electric Company.

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COLOR CARDS

A pamphlet illustrating and describing the use of Diamine Fast Colors and Union Fast Colors in dyeing union goods has been issued by the Cassella Color Co., New York. It shows a series of 90 dyed patterns, of which 30 are self shades and 60 are combinations on a wide variety of fabrics, together with elaborate dyeing directions.

To dyers of all classes of cotton and wool mixtures this pamphlet will prove of much value, as it shows two depths of shade for each color type, thus enabling the dyer to accurately judge the color value of each dye.

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Fast bright green shades on woolen goods of various kinds are frequently desired, and for this purpose Cyanole Fast Green G G, manufactured by the Cassella Color Co., New York, is to be suggested for dyeing such fabrics as billiard table cloth, worsted for braids, carpet and rug yarns, and upholstery material generally, as it possesses the property of resisting light, alkalies, decatizing and carbonizing to a marked degree, besides dyeing level and with good penetration.

TREASURY DECISIONS

T. D. 34484. May 27, 1914. Drawback on uniforms. Drawback on men's two-piece uniforms manufactured by Sigmund Eisner, of Red Bank, N. J., with the use of imported cotton cloth (waterproof twillettes).

T. D. 34491. June 1, 1914. Drawback on collars. Drawback on silk-faced collars manufactured by Cluett, Peabody & Co. (Inc.), of Troy, N. Y., with the use of imported silk piece goods.

T. D. 34492. G. A. 7568. May 25, 1914. Secondhand jute bags, printed. Secondhand jute bags upon which letters or figures have been stenciled or printed by the shipper who used the bags in the first instance, which printing decreases rather than increases the present value of the bags, are nevertheless excluded from paragraph 281, tariff act of 1913, by the provisions "not dyed, colored, stained, painted, printed, or bleached," and are properly dutiable at 35 per cent. ad valorem as manufactures of vegetable fiber.

T. D. 34499. June 2, 1914. Drawback on neckties. Drawback on neckties manufactured by H. Richter's Sons, of New York, with the use of imported silk, cotton, and fiber piece goods.

T. D. 34500. June 2, 1914. Drawback on velveted piece goods. T. D. 33987 of December 17, 1913, extended to cover velveted piece goods manufactured by Martin Biavaschi from imported plain cotton and silk piece goods for the account of Stern & Stern, of New York.

T. D. 34538. June 11, 1914. Cotton table covers. Cotton table covers of a character both in use and weave similar to upholstery articles properly dutiable at the rate of 35 per cent. ad valorem under paragraph 258, tariff act of 1913.

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SIZOL

The Seydel Mfg. Co., Forrest and Halladay Sts., Jersey City, N. J., are manufacturers of Sizol for sizing warps. A number of advantages are claimed for this sizing material. The manufacturers state that an examination of a cross section of Sizol warp under a good magnifying glass or a microscope will show the merits of the material. The Sizol warp speaks for itself, showing the starch through all parts of the yarn.

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Two new yellows designated respectively Immedial Yellow B G and Immedial Yellow B R are recent additions to the series of Immedial Colors of the Cassella Color Company, New York and which are illustrated and described in Cotton Supplement No. 8. These products appear to be of considerable interest to dyers on account of their greatly increased fastness to light, washing and hot pressing, besides having marked level dyeing properties. A copy of this supplement can be obtained upon request to any of the branches of the Cassella Color Company.

Recent Textile Patents

BILLIARD-CLOTH, Repairing. 1,097,481. Jake M. Stivers, Springfield, Mo.

BOBBIN STRIPPING Apparatus. 1,097,942. Alonzo E. Rhoades, Hopedale, Mass.

BOBBIN STRIPPING Device. 1,097,943. Alonzo E. Rhoades, Hopedale, Mass.

CARDING or Breaking Machine, Waste or Like. 1,096,864. Wilhelm Rothe, Reichenbach, Germany.

CLOTH FOLDING Machine. 1,097,649. Karl Kunzi, Schaffhausen, Switzerland.

DECORTICATING FIBROUS Substances, Machine for. 1,098,180. Owen Sheehan, New Bedford, Mass.

DYEING. 1,096,997. Harry C. Brook, Hartford, Conn.

FLAX and Other Long Staple Fibers, Machinery for Hackling and Spreading. 1,099,084. Joshua V. Eves, Belfast, Ireland.

KNITTING MACHINE. 1,096,946. Frank Pope, Kankakee, Ill.

KNITTING MACHINE Feeding Attachment. 1,097,115. Joseph A. Wutsch, Addison, Conn.

KNITTING MACHINE Needle. 1,097,732. Robert W. Scott, Boston, Mass.

KNITTING MACHINE Needle. 1,096,945. Frank Pope, Hartford, Conn.

KNITTING MACHINE, Rib. 1,097,733. Robert W. Scott, Boston, Mass.

KNITTING MACHINE Stop Motion. 1,096,890. William W. Burke, Bennington, Vt.

KNITTING MACHINES, Automatic Stopping Mechanism for. 1,097,503. Harry W. Anthong, Strasstown, Pa.

KNITTED FABRICS Having Ribbed Sections. 1,097,734. Robert W. Scott, Boston, Mass.

KNOTTER. 1,097,527. Benjamin H. Bunn, Chicago, Ill.

LACE MAKING Machine. 1,098,217. Wilhelm Bisdorf, Barmen, Germany.

LOOM BRAKE. 1,098,278. Raul Martel, Fall River, Mass.

LOOM FILLING Slackener. 1,098,685. Alonzo E. Rhoades, Hopedale, Mass.

LOOM SHUTTLE Binder. 1,097,671. Noe Lariviere, Baltic, Conn.

LOOM SHUTTLE, Weft Replenishing. 1,098,744. Fred A. Machester, Hopedale, Mass.

LOOMS for Weaving, Reed Relief Motion for. 1,098,984. Thomas Shaw, Padiham, Eng.

LOOM SHUTTLE. 1,098,713. Frank J. Dutcher, Hopedale, Mass.

SPINDLES, Stopping Device for Winding. 1,097,691. Simon W. Wardwell, Providence, R. I.

SPINNING RING Holder. 1,098,525. George L. Pierce, Manchester, N. H.

TEXTILE FIBER, Production of Reserve Effects on. 1,098,145. Ernest Bentz, Manchester, Eng.

TEXTILE FIBERS with Soapy Preparations, Finishing or Dressing. 1,097,493. Robert Weiss, Kingershein, Germany.

THREADS from Woven Fabrics, Machine for Extracting. 1,097,216. John W. Eshelman, New York.

THREADS Arranged in a Row, Device for the Purpose of Singly Separating. 1,097,202. Otto von Meyenburg, Zurich, Switzerlnd.

WARP Thread-Piecing Apparatus. 1,098,308. Max Wenzel, Spremberg, Germany.

WEAVING and Like Purposes, Strip for. 1,096,865. Leopold S. Samuel, Newark, N. J.

WEAVING APPARATUS, Fabric. 1,098,755. Emil Prein, Hanover, Germany.

WOVEN FABRIC. 1,098,533. William F. Scott, Madison, Me.

TRADE MARKS RECENTLY FILED FOR REGISTRATION

71,614. Union suits. Mark: Dimco. Owner: Diamond Mfg. Co., Wilmington, Del.

73,617. A woven textile fabric. Mark: Saxolin. Owner: The Cleveland-Akron Bag Co., Cleveland, O.

73,933. Hosiery. Mark: Ironknit. Owner: G. V. S. Quackenbush & Co., Troy, N. Y.

73,103. Velvets and plushes. Marks: "Kurltex" and "Kurlette." Owner: Salt's Textile Mfg. Co., Bridgeport, Conn.

75,543. Hosiery. Mark: Seal of Quality. Owner: Wallace G. Starry, Harrisburg, Pa.

77,873. Velvets and plushes in the piece. Mark: Ponetta. Owner: The Salt's Textile Mfg. Co., Bridgeport, Conn.

77,899. Bleached and unbleached muslins. Mark: City Maid. Owner: Wheeler & Motter Mercantile Co., St. Joseph, Mo.

77,900. Bleached and unbleached musline. Mark: Southern Star. Owner: Wheeler & Motter Mercantile Co., St. Joseph, Mo.

77,930. Textile rugs. Mark: Miles Standish. Owner: R. H. Macy & Co., New York.

71,002. Clothing. Mark: McMillan Pants. Owner: The Lawrence Webster Co., Malone, N. Y.

76,227. Athletic knit goods. Mark: LL bo. Owner: William H. Wye, Needham, Mass.

76,787. Ginghams, seersuckers, etc. Mark: Aurora. Owner: Aurora Cotton Mills, Burlington, N. C.

77,301. Ginghams and cotton goods. Mark: Carsona. Owner: Carson, Pirie, Scott & Co., Chicago, Ill.

77,333. Cotton piece goods. Mark: Wara. Owner: Appleton Co., Lowell, Mass.

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DIRECT IMPORTERS OF EGYPTIAN COTTON

COTTON WOOLEN WORSTED MACHINERY

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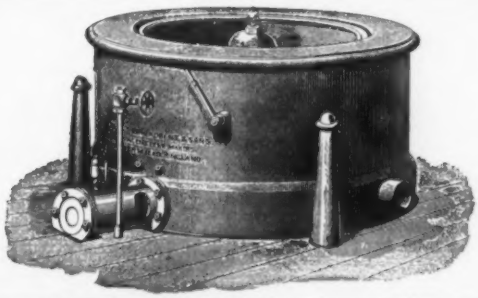
PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



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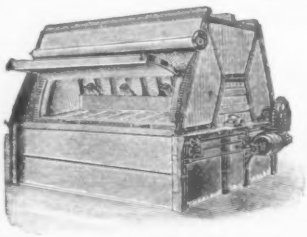

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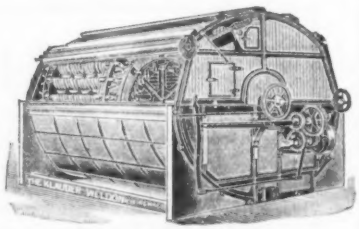
sold on
2 MONTH'S TRIAL
YOU
TAKE
NO
RISK



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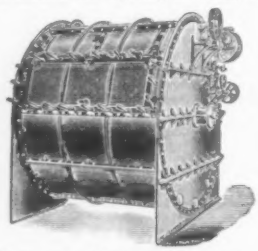

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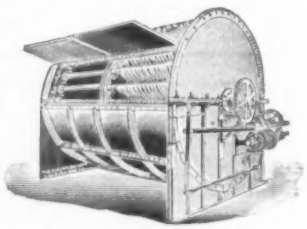

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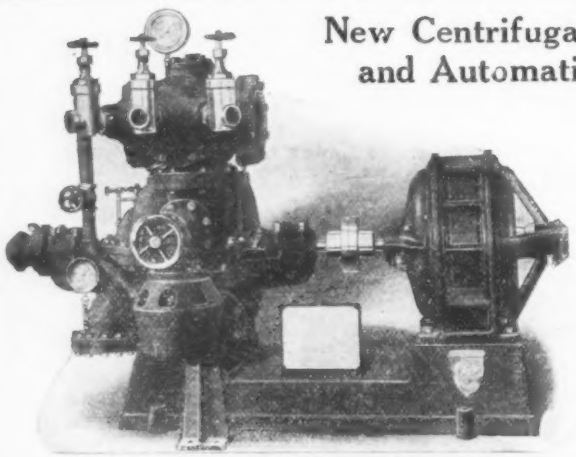

Goulds Fig. 3014 Centrifugal Fire Pump.

These pumps are of the Horizontal Type and are built in two or three stages for 100 pounds pressure. They are of the highest quality and are built in conformity with the specifications of the Fire Underwriters.

This pump is made in five sizes having capacities ranging from 500 to 1500 gallons per minute.

On request we will send you our new bulletin with full description.

Ask for Bulletin No. 118.

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Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

Accountants and Systematizers.
Gunn, Richards & Co.

Air Moistening System.
——See Humidifying Apparatus.

Architects and Mill Engineers.
Cramer, Stuart W.
Dyer, W. E. S.
Ferguson, John W.
Main, Chas. T.
Myrick, J. W. H.

Asbestos Covering.
Johns-Manville Co., H. W.
Keasbey, Robert A.

Asbestos Products.
Johns-Manville Co., H. W.
Keasbey, Robert A.

Asphalt Tanks.
Scaife, W. B., & Sons.

Autophones.
Couch, S. H., Co., Inc.

Automatic Feeds for Cotton and Wool.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Bale Presses.
Saco-Lowell Shops.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.

Ballers.
Saco-Lowell Shops.

Ball Bearings.
Hess Bright Mfg. Co.
S. K. F. Ball Bearing Co.

Bandings.
Lambeth Rope Corporation.
Sternberg, Fred, & Co.

Baskets.
Lane, W. T., & Bro.

Beams (Steel).
Mossberg, Frank, Co.

Beamers.
Crompton & Knowles Loom Works.

Belting.
Bond, Chas., Co.
Gandy Belting Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Hood, R. H., Co.
——See also Mill Supplies.

Belt Cement.
Graton & Knight Mfg. Co.

Belt Dressing.
Dixon, Jos., Crucible Co.
Graton & Knight Mfg. Co.
Stephenson Mfg. Co.

Belt Tighteners.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Arlington Mch. Wks.
Birch Bros. (Albert Birch, prop.).
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Stearns Lumber Co., A. T.
Textile-Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Electro Bleaching Gas Co.
Marston, John P.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.
Wolf, Jacques & Co.
Worden Chemical Works.

Blowers and Blower Systems.
Autoforce Ventilating System.
Carrier Air Conditioning Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Kunze, Otto.
Leigh & Butler.
Mossberg, Frank, Co.
Parker Spool & Bobbin Co.
Tebbets, E. L., & Co.

Bobbin Winders.
Altemus, J. K.
Lever, Oswald, Co.
Universal Winding Co.

Boilers.
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Boiler Graphite.
Dixon, Jos., Crucible Co.

Books.
Chittick, James.

Boxes, Box Shooks, Etc.
Pearson, J. T.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
——See Napping Machines.

Brushes.
Cocker, M., & Co.
Felton, S. A., & Son Co.
Mason Brush Works.
Parks & Woolson Machine Co.

Brushing Machines.
Buhlmann, A. W.
Parks & Woolson Machine Co.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Button-Hole Machines.
Reece Button-Hole Machine Co.

Button Sewing Machines.
Union Button Sewing Co.

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Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Taunton-New Bedford Copper Co.
Textile-Finishing Machinery Co.
——See also Dyeing, Drying, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Cap Spindles.
American Textile Specialty Mchy. Co.

Carbonizing Machinery.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Textile-Finishing Machinery Co.
Tolhurst Machine Works.

Card Clothing.
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Firth, William, Co.
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Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
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Richards, Atkinson & Haserick.
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Smith & Furbush Machine Co.

Carding Machinery.
Saco-Lowell Shops.

Card Stampers and Repeaters.
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Altemus, Jacob K.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Parks & Woolson Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.
Textile-Finishing Machinery Co.

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Eppler's, John, Machine Works.

Clocks.
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Watchman's Clock & Supply Co.

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Pearson, J. T.
Richardson Brothers.
Textile-Finishing Machinery Co.

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Eastman Machine Co.
Firth, William, Co.
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Cloth Shrinking Machinery.
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Suter, Alfred.

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American Tool & Machine Co.
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Coal Analysis.
Little, A. D., Inc.

Coal and Ash Handling Machine.
Hunt, C. W., Co., Inc.

Cold Sawing Machine.
Burr & Son, John T.

Combs (Wool and Cotton).
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Dean Bros. Steam Pump Works.
Wheeler Condenser & Engineering Co.

Cones (Paper).
American Textile Specialty Mchy. Co.
Pairpoint Corporation.

Conditioning and Testing.
U. S. Conditioning & Testing Co.

Conveying Systems.
Dodge Mfg. Co.
Sturtevant, B. F., Co.

Coolers (Air).
Power Specialty Co.
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Cop Machinery.
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Cop Tubes.
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Badger, E. B., & Sons Co.

Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.
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Butterworth, H. W., & Sons Co.
Textile-Finishing Machinery Co.

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Elliot & Hall.
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Fales & Jenks Mch. Co.
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Klauder-Weldon Dyeing Machine Co.
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Metallic Drawing Roll Co., The.
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Arlington Mch. Wks.
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Birch Bros., Somerville Machine Wks.
Buhimann, A. W.
Butterworth, H. W., & Sons Co.
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Curtis & Marble Machine Co.
Entwistle, T. C., Co.
Giles, J. H., Dyeing Machine Co.
Heathcote, John, & Son.
Hunt, Rodney, Mach. Co.
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Tolhurst Machine Works.
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Hill, James, Mfg. Co.

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Dye Sticks.
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Electro Bleaching Gas Co.
Farbwerke-Hoechst Co.
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Geisenheimer & Co.
Harding & Fancourt, Inc.
Holliday, Read & Sons.
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Klipstein, A., & Co.
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Stein, Hirsh & Co.
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Thayer, Ed M., & Co.
Wing & Evans, Inc.
Wolf, Jacques & Co.
Worden Chemical Co.

Dynamos.
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Edgings.
——See Tapes, Braids and Edgings.

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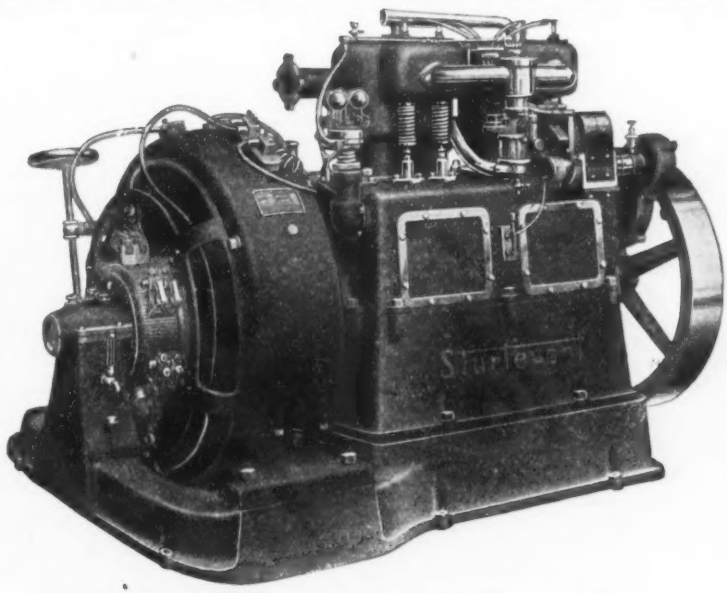

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(REG. U. S. PAT. OFF.)

is evident in every part of these outfits and recommends them for your service.

They are simple, compact and self contained, will operate smoothly and quietly under all loads and do not requiring storage battery as equalizer. Speed control is perfect.

¶ They can be installed at small expense in the section of the mill where their output is required without regard to the distance from the main boiler room.

¶ They can be easily started when required and are always ready. There are no stand-by expenses when the machines are idle.

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¶ The sets are now built in 5, 10 and 15 K. W. sizes and can be adapted for operation on gasoline, kerosene or illuminating gas as fuel. Generators can be furnished for any voltage, direct current and standard alternating current voltages.

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Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.
Salem Elevator Works.

Employes' Time Recorders.
Pettes & Randall Co.

Engines.
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Exhaust Heads.
Power Specialty Co.
Sturtevant, B. F., Co.

Fans—Exhaust and Ventilating.
——See Ventilating Apparatus.

Feed Water Heaters.
Scaife, W. B., & Sons.

Feed Water Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

Feed Water Purifiers.
American Water Softener Co.
Scaife, W. B., & Sons.

Feeds.
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Felt Rotary Washers.
Hunt, Rodney, Machine Co.

Felting Machinery.
Hunt, Rodney, Machine Co.

Fences.
Old Colony Foundry & Fence Co.

Fender Boards.
Case Brothers.

Filters.
American Water Softener Co.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Finishing Compounds.
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Finishing Machinery.
——See Dyeing, Drying, Bleaching and Finishing.

Fire Brick.
Borgner, Cyrus, Co.
Johns-Manville Co., H. W.

Fire Extinguishers.
Badger, E. B., & Sons Co.
Johns-Manville Co., H. W.

Fire Hose.
Eureka Fire Hose Co.
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Metallic Drawing Roll Co.
Riley, C. E., Company.

Flyers.
Bodden, Wm., & Son, Ltd.
Firth, William, Co.
H. & B. American Machine Co.
Leigh & Butler.
Textile Machinery Co.

Forges.
Sturtevant, B. F., Co.

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Friction Cones.
Evans Friction Cone Co.

Fuel Economizers.
Sturtevant, B. F., Co.

Fulling Mills for Woolen Goods.
Hunt, Rodney, Mach. Co.
Hunter, James, Mach. Co.
Kenyon, D. R., & Son.

Furnaces (Automatic Smokeless).
Murphy Iron Works.

Garnetts.
Hunter, James, Machine Co.
Leigh & Butler.
Smith & Furbush Machine Co.

Garnetted Stock.
Graves, Frank B.

Gas Blowers and Exhausters.
Sturtevant, B. F., Co.

Gas Engines.
Allis-Chalmers Mfg. Co.

Gas Systems.
Kemp Mfg. Co.

Gaskets (Superheated Steam).
Johns-Manville Co., H. W.
Power Specialty Co.

Gauges.
Lunkenheimer Co., The.

Gears.
New Process Gear Corporation.

Gear Cutting Machine.
Whiton, The D. E., Co.

General Call Service.
Couch, S. H., Co., Inc.

Generating Sets.
Allis-Chalmers Mfg. Co.
General Electric Co.
Sturtevant, B. F., Co.

Geyser Water Heater.
Sargent's Sons, C. G., Corp.

Gold Transfer Stamps.
Meyercord Company, Inc.

Greases.
Borne, Scrymser Co.
N. Y. & N. J. Lubricant Co.
Royersford Foundry & Machine Co.

Hangers.
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Harness Twine.
Moore, C., & Co.

Harness and Frames.
Garland Mfg. Co.
Steel Heddle Mfg. Co.

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American Supply Co.
Firth, William, Co.
Lavigne & Suter.
Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.

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Economy Engineering Co.
Hunt, Rodney, Machine Co.
N. Y. Revolving Portable Elevator Co.

Hose.
Goodyear Tire & Rubber Co.

Hosiery Boards.
Pearson, J. T.
Philadelphia Drying Machinery Co.

Hosiery Labels.
Kaumagraph Co.
Meyercord Company, Inc.

Humidifying Apparatus.
American Moistening Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Parks, G. M., Co.

Humidity Controller.
American Moistening Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.

Humidity Gauge.
Johns-Manville Co., H. W.

Hydraulic Rams.
Power Specialty Co.

Hydro Extractors.
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Richards, Atkinson & Haserick.
Riley, C. E., Co.
Schaum & Uhlinger, Inc.
Schwartz, L. H. A., & Co.
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Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.

Insurance (Casualty, Fire and for Loss of Profits).
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Jacquards.
Crompton & Knowles Loom Works.
Halton's, Thomas, Sons.

Jacquard Cards.
Case Bros., Inc.

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Keyway Bronding Machine.
Burr & Son, John T.

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Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

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Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
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Knitting Machine Cylinders.
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Stafford & Holt.

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Acme Knitting Machine & Needle Co.
Ainslie Knitting Machine Co.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
Cooper, Charles.
Crane Mfg. Co.
Eppiers, John, Mach. Works.
Gormly, Robt. W., & Co.
Grosser Knitting Machine Co.
Hemphill Mfg. Co.
Jenckes Knitting Mach. Co.

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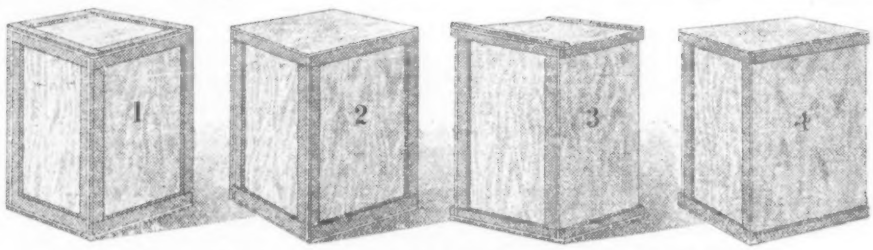
YOU WILL LIKE THE UNIFORM QUALITY AND SIZE

Of "GARLAND" RAWHIDE PICKERS

Our rawhide loom pickers are uniform in quality because they are made from the best obtainable hides which are selected especially for us, and they are uniform in size because every important process through which the pickers go is in the hands of men thoroughly experienced in the work upon which they are engaged.

GARLAND MFG. CO.
SACO, MAINE

Three-Ply Veneer Packing Cases



LIGHTEST STRONGEST NEATEST

The weight is about forty per cent less than any other case of equal strength, enabling the shipper to save considerable in freight.

The veneer is made of three pieces of wood glued together with the center grain running in the opposite direction from the outside. This makes the strength more than double any other wood of equal thickness.

The sides, ends, tops and bottoms are made of one piece, thereby making a very neat and practically dust and dirt proof package.

If interested write us giving some of your sizes, weights to be carried and material to be packed.

Empire Manufacturing Company, Goldsboro, North Carolina

Lamb Knitting Machine Mfg. Co.
Leighton Machine Co.
Nye & Tredick Co.
Paxton & O'Neill.
Scott & Williams, Inc.
Spindler, E. O.
Stafford & Holt.
Standard Machine Co.
Stibbe, G., & Co.
Taylor, James.
Textile Machine Works.
Tompkins Bros. Co.
Walther, Otto.
Wildman Mfg. Co.

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Hirsch, Louis.
Grosser Knitting Machine Co.
Spindler, E. O.
Textile Machine Works.
Walther, Otto.

Knitting Needles and Supplies.
Acme Knitting Machine & Needle Co.
Breedon's, Wm., Sons.
Brinton, H., & Co.
Continental Latch Needle Company.
Cooper, Charles.
Crane Mfg. Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Keystone Latch Needle Co.
Lamb Knitting Machine Mfg. Co.
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Wardwell Needle Co.

Labeling Machines.
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Label Wire Stitchers.
Shoemaker, J. L., & Co.

Lace Machines.
Spindler, E. O.

Lamps, Electric.
Edison Lamp Works of General Electric Co.
General Electric Co.
Johns-Manville Co., H. W.
Westinghouse Electric & Mfg. Co.

Liquid Chlorine.
Electro Bleaching Gas Co.

Lace Leather.
Graton & Knight Mfg. Co

Loom Pickers.
Garland Mfg. Co.
Graton & Knight Mfg. Co.

Looms.
Buhlmann, A. W.
Crompton & Knowles Loom Works.
Draper Company.
Leigh & Butler.
Mason Machine Works.
Richards, Atkinson & Haserick.
Saco-Lowell Shops.
Stafford Co., The.

Loopers.
Grosser Knitting Machine Co.
Hepworth, John W., & Co.
Leighton Machine Co.

Lubricants.
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.
N. Y. & N. J. Lubricant Co.
Royersford Foundry & Machine Co.
S. K. F. Ball Bearing Co.

Lubricators.
Lunkenheimer Co.

Lumpers.
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Machinery Dealers.
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Bradley, A. J.

Measuring and Folding Machines.
Curtis & Marble Machine Co.
Elliot & Hall.
Parks & Woolson Machine Co.

Mechanical Draft.
Sturtevant, B. F., Co.

Mechanical Draughtsmen.
Dodge Mfg. Co.
Sturtevant, B. F., Co.

Mechanical Engineers.
American Tool & Machine Co.
Dodge Mfg. Co.
Myrick, J. W. H.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Mechanical Stokers.
Murphy Iron Works.

Mercerizers.
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer, Wm. H., Sons Co.

Mercerizing Machinery.
Buhlmann, A. W.
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Smith, Drum & Co.
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Eureka Fire Hose Co.
Firth, William, Co.
Garland Mfg. Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Hess-Bright Mfg. Co.
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Kunze, Otto.
Lane, W. T., & Bro.
Leigh & Butler.
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N. Y. & N. J. Lubricant Co.
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Richardson Bros.
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N. Y. & N. J. Lubricant Co.

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Glidden Varnish Co.
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Wadsworth, Howland & Co.

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Pairpoint Corporation.

Patent and Trade Mark Solicitors.
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Crosby & Gregory.
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Beckley Perforating Co.

Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.

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Pinking Machines.
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American Mfg. Co.
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American Tool & Machine Co.
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Cresson-Morris Co.
Dodge Mfg. Co.
Evans, G. Frank.
Hess-Bright Mfg. Co.
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Hunter, James, Machine Co.
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Royersford Foundry & Machine Co.
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Dean Bros. Steam Pump Works.
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Goulds Mfg. Co.
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Wheeler Condenser & Engineering Co.
Worthington, Henry R.

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American Water Softener Co.
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Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Quillers.
Foster Machine Co.
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Maurer, F. W., & Sons Co.
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Crosby & Gregory.
Heard, Smith & Tennant.

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Kaumagraph Co.
Meyercord Company, Inc.
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Philadelphia Textile Machinery Co.
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Draper Company.
Entwistle, T. C., Co.
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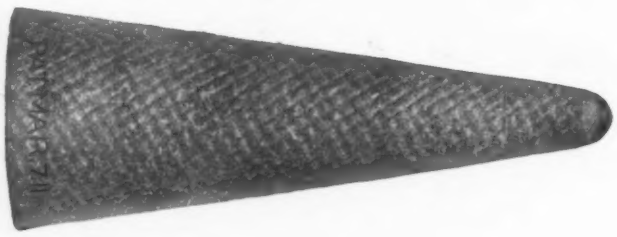

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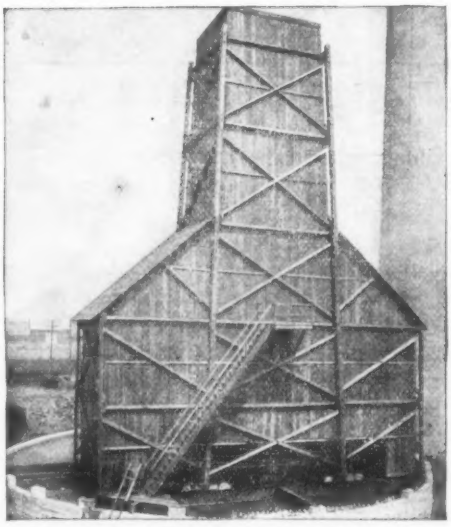

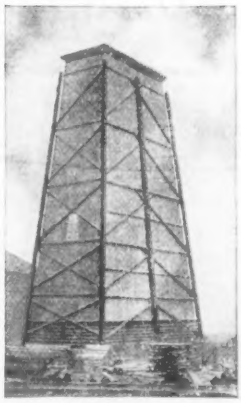

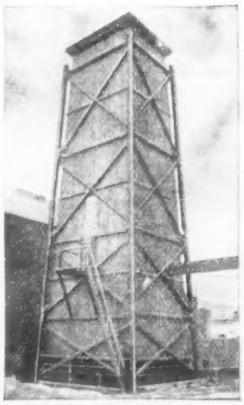

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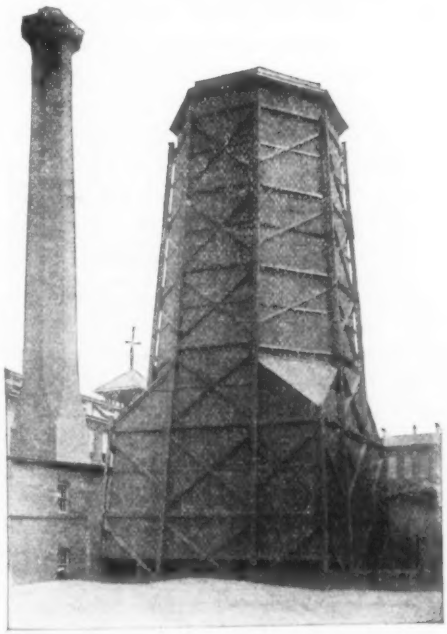

A Wheeler-Balcke Tower at the Plant of the Sanquoit Silk Mfg. Co. Attention is drawn to the Octagonal Chimney.

For complete information on all types of condensing machinery, surface and jet condensers, air pumps (including the new Wheeler Turbo Air Pump), cooling towers, centrifugal pumps, etc., write for the Wheeler Bulletins. Also ask for the Wheeler Booklet, "Steam Tables for Condenser Work."

WHEELER CONDENSER & ENGINEERING CO.
CARTERET, NEW JERSEY

Publishers' Page

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They contain identically the same reports that are to be found in the complete Official American Textile Directory and in the same arrangement, excepting that the Vest Pocket Editions are in territorial divisions, namely:

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2. Middle Atlantic States;
3. Southern and Western States.

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See review under "New Publications" in our April issue.

Change of Address

Subscribers are requested to notify us in writing before the 5th of the month of any change of address desired, as that is the date on which our mailing lists close for the current month. If we do not receive notice of the change until after the 5th, that month's issue will go to the old address and may require postage for reforwarding.

It sometimes happens that because a news item has been published to the effect that he has moved from one mill to another, a subscriber thinks that his address will be changed automatically without any instructions from him and he will sometimes write to the effect that we knew he had moved because we had published an item about it and he does not see why his magazine was not sent to his new address. He forgets that the subscription department is entirely separate from the news department and has over 6,000 names to look after and can hardly be expected to search the news columns for possible changes of address, and even if it did, it would not be proper to make changes unless ordered or authorized by the subscriber.

Please, therefore, be considerate, for your own sake as well as ours, and advise us promptly and definitely when changing your address. It helps us very much if your old address is given, as well as your new address stated clearly.

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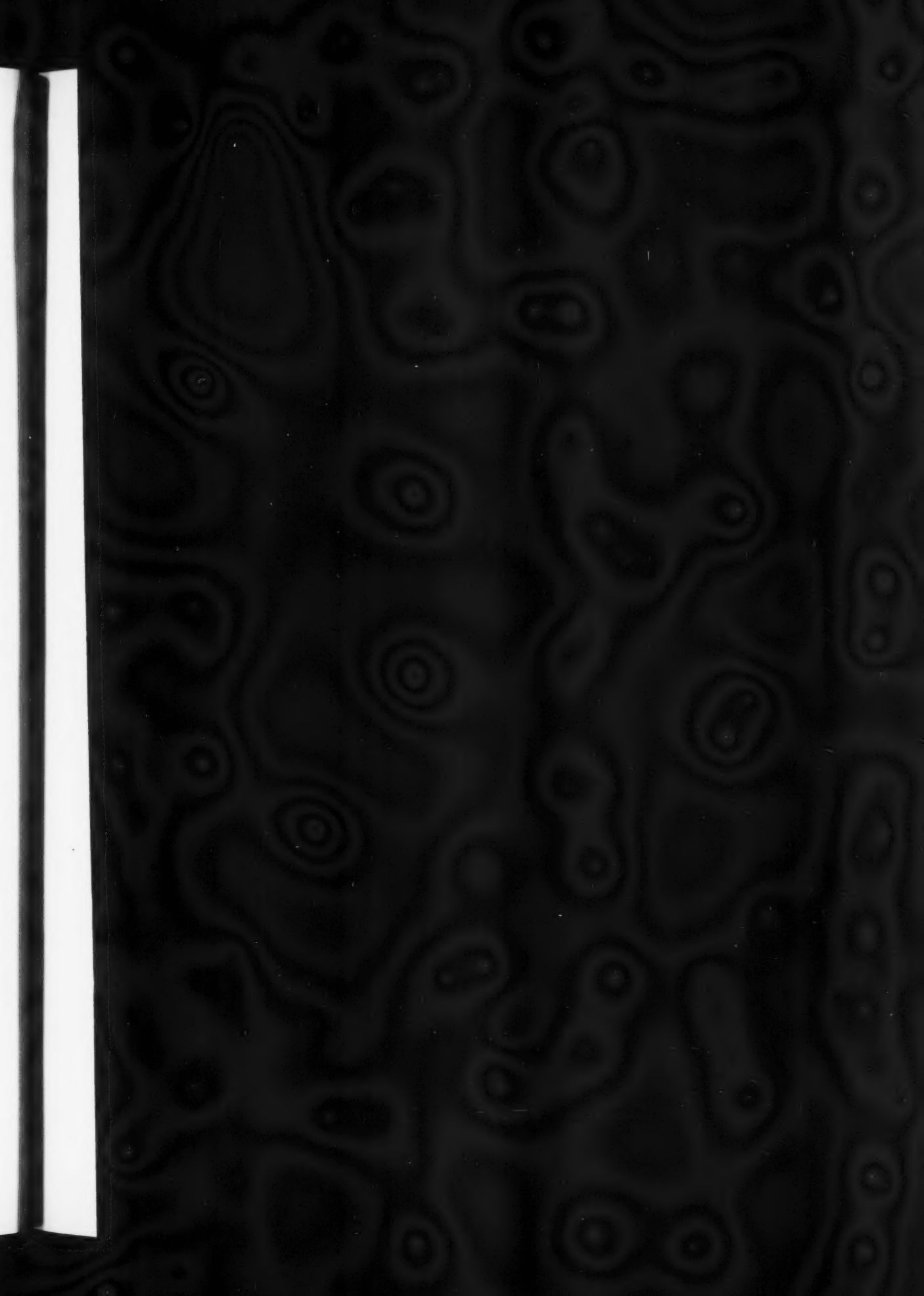
A. Ferguson MacIntyre.

(Mr. MacIntyre is an old subscriber who is just starting a new plant in Canada.)

Monthly Circulation Statement

Of this edition over 6,250 copies are printed and all are needed.

The circulation of the Textile World Record has heretofore been audited by the Association of American Advertisers, but as this Association has been merged with the new Audit Bureau of Circulations, of which the Textile World Record is also a member, the new Bureau, which is composed of advertisers and publishers, will hereafter audit our circulation records. And all of our circulation statements will continue to be guaranteed and made a part of each advertising order. Our books are always open to any association, agent or any present or prospective advertiser, who wishes to investigate our circulation figures.



The Chemistry and

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Partial Description of Contents.

Chapter I. Substances for Giving Adhesive Properties to the Size.
Chapter II. Materials Used for Giving Weight and Body to the Size and Yarn.
Chapter III. Ingredients Used to Soften the Size and Yarn, Oily and Greasy Substances.
Chapter IV. Soaps—Manufacture of—Analysis of—Use in Sizing.
Chapter V. Deliquescent Substances Used for Softening and for Giving Weight and Strength to the Yarn.
Chapter VI. Ingredient Used for Preserving Size from Mildew.
Chapter VII. Size Mixings, and the Methods and Plant Employed in Mixing Size — Arrangement of Plant Employed in Size Mixing Rooms — Preparation of the Ingredients Previous to Mixing — Method of Mixing the Sizing Ingredients — Size Mixing for Various Weights — Sizing for Native Dyeing — Size Mixing which Cause Tendering — Colors Used for Tinting the Size.
Chapter VIII. Sizing — The Slasher - Creel — Size Box — Cylinders — Headstock — Fans-Wraith — Crooked Beams — Lease Rods — Reducing or Equilibrium Valve — Weighting the Backbeams — The Slasher Tender.
Chapter VIII A. The Practice of Sizing — Medium and Heavy Sizing — Light Weights on "First Beams" — Soft Beams — How to Obtain a Good "Finish" on Yarn Colored Sizing.
Chapter IX. Ball or Warp Sizing. The Tinting of Yarns in the Process of Sizing. Warp Bleaching — Ball Sizing Plant — Sizing Machine - Drying Machine — Balling Machine — Tinting Ball Sized Warps.
Chapter X. Hank Sizing and Bleaching — Hank Sizing — Hank Sizing Plant — Hank Bleaching.
Chapter XI. The Preparation of the Yarn for the Process of Weaving and the Testing of Sized Yarn.
Chapter XII. The Physical and Chemical Properties of Cotton.
Chapter XIII. The Analysis of Sized Grey Cloth — Qualitative Analysis — Quantitative Analysis.
Chapter XIV. Damage to which Sized Cloth is Liable, Mildew and Iron-Stains.
Chapter XV. Bleaching — Faults in Sized Cloth which Cause Damage when Bleached and Finished.
Chapter XVI. The Ventilation of Humidified Weaving Sheds — Weaving — Table of Maximum Limits of Humidity Allowed in Weaving Sheds — Science of Ventilating — Plenum — Humidifying and Cooling Arrangements.
Appendix — Flour Milling — Farina and Dextrin Commercially Considered — New Process of Dyeing.

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Overseer of Finishing in woolen or worsted mill; has worked on all grades of kerseys, broad cloths, carriage cloths, dress goods, meltons, cheviots, chinchillas, worsteds, cotton mixed goods, piece dyes and wool dyes; familiar with all makes of machinery; 44 years of age, married; will not go West, South or to Canada; good reference.
6172, Textile World Record, Boston, Mass.

Overseer, superintendent, or agent in bleachery and finishing plant; overseer in cloth room or finishing room in cotton mill; has worked on all classes of cotton goods; has had experience in bleacheries on heavy clay filled work such as sign cloth, bag goods, shoe linings and muslins; 46 years of age, married; familiar with all makes of machinery; good reference.
6173, Textile World Record, Boston, Mass.

Overseer of Weaving in cotton mill; has worked on prints, fine lawns, plain umbrellas with tape selvage; familiar with Kilburn & Lincoln, Mason, Crompton & Knowles plain looms; will not go to Pa., N. Y., N. J., West, South or to Canada; 43 years of age, married; good reference.
6195, Textile World Record, Boston, Mass.

Agent or superintendent and agent in woolen mill; would consider position as styler for commission house; has worked on all grades of woolen and worsted goods; familiar with all makes of machinery; good reference.
6196, Textile World Record, Boston, Mass.

Overseer of Finishing or finishing and dyeing in woolen mill; has worked on woolens, worsteds, piece dyes, dress goods, of all kinds; cottons and cotton worsteds, in fact most everything; familiar with most all makes of machinery; 28 years of age, married; will not go West or to Canada; good reference.
6197, Textile World Record, Boston, Mass.

Second Hand of Carding and combing rooms in cotton mill; has worked on most all kinds of goods from long and short cotton, making fine and coarse yarns, filling and warping; familiar with Kitson pickers, Whitin, Saco & Pettee, Hetherington, Howard & Bullough cards, doublers, combers and speeders; 29 years of age; good reference.
6198, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on piece dyeing and raw stock; will not go to Pa., West, South or to Canada; good reference; 50 years of age, married.
6199, Textile World Record, Boston, Mass.

Overseer of Dyeing or superintendent in woolen mill; has worked on all classes of woolens, worsteds, knit goods, hosiery, stock and yarn on the dyeing end and on fancy and plain piece dyes on manufacturing; familiar with all modern textile machinery from the yarn up; partially on yarn carding and spinning; 39 years of age, married; good reference.
6200, Textile World Record, Boston, Mass.

Superintendent, assistant superintendent or overseer of spinning, spooling and warping in cotton mill; has worked on both fine and coarse numbers; familiar with both English and American makes; 43 years of age, married; will not go South or to Canada; good reference.
6176, Textile World Record, Boston, Mass.

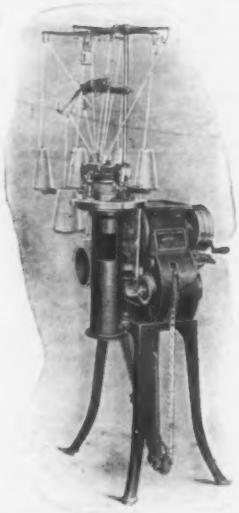
Overseer of Ring Spinning in cotton mill; would consider second hand position; has worked on combed, carded, Peeler, Sea Island, cotton waste, Egyptian and all short stock; familiar with Fales & Jenks, Saco & Pettee, Whitin, Mason, Howard & Bullough and Lowell frames; 24 years of age; good reference.
6177, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; has worked on all classes of woolen goods; familiar with Johnson & Bassett and Davis & Furber mules and operators; 28 years of age, married; good reference.
6178, Textile World Record, Boston, Mass.

Superintendent or assistant manager in cotton mill; has spun cotton yarns from 8s to 60s on ring frames; has woven all sorts of plain cotton cloth; familiar with cotton spinning and weaving machinery; 33 years of age; good reference.
6179, Textile World Record, Boston, Mass.

Here's the Machine that Saves 7 to 15 Cents a Dozen

On the Manufacturing Cost of Half Hose



IMPROVED MODEL F MACHINE

Don't you find it difficult to sell your half hose at a price to give both yourself and your customer a satisfactory **profit?**

Our MODEL F MACHINE **helps** this situation.

You can now make half hose with **a saving** ranging from **7 to 15 cents** per dozen.

Established 1865

SCOTT & WILLIAMS, INC.

88 PEARL STREET, - BOSTON, MASS.

NEW YORK PHILADELPHIA UTICA

New Mills.

New Jersey, Riverside. George Baker is equipping a plant in this town for the manufacture of incandescent gas mantles, which he will sell direct.

Ohio, Plain City. A company will be organized with capital stock of $15,000 by John C. Tauber and E. G. Tauber to manufacture angora fur cloth. It is expected manufacturing will be started in September with two sets of wool cards, 6 knitting machines and 3 sewing machines. The capital has all been paid in but a charter has not been secured and they have not fully decided on a name for the new company. It will probably be the Ohio Wool Company. J. C. Tauber formerly operated a small wool scouring, carding and batting mill at Erie, Pa.

*Pennsylvania, Allentown. The D. & S. Knitting Company, with J. Fink Thompson in charge, has been started up in this city at 722 Linden St., where a number of knitting machines and auxiliary machinery have been installed for the manufacture of infants' and children's knitted waists.

Pennsylvania, Philadelphia. The Keystone Knitting Mills are equipping a plant at 826 Porter St., in which they are about to manufacture a line of knitted neckwear. The production will be sold direct. They will buy silk, art silk and mercerized yarns.

*Pennsylvania, Reading. Louis F. Laird is fitting up a plant at Carpenter and Cherry Sts. for the manufacture of seamless cotton and mercerized half hose, 220-needle goods. The equipment will consist of 50 latch needle knitting machines, 8 ribbers and 6 loopers, operated by electric power. The plant will be started up within a few days.

Pennsylvania, Reading. The Fisher Hosiery Co., with P. H. Fisher as proprietor, and Harry E. Katzenmoyer, superintendent, are starting up a plant in the rear of 912 Penn St. in which they will install 30 latch needle knitting machines, 3 loopers and 1 welter, to be operated by electric power on ladies' silk and art silk plaited and plain seamless hosiery, 220 needle goods. The production will be sold through New York.

*Pennsylvania, Temple. Two full fashioned twenty-section knitting machines with necessary looper, seamer, and winding machines, will be installed in the mill being erected at Rosedale and to be operated under the name of the Rosedale Knitting Company. Electric power will be used and it is expected that manufacturing will be started about July 1 on full fashioned men's silk half hose. W. C. Bitting, 835 N. 10th St., Reading, is president, business manager and buyer, and Wilhelm Doyn is treasurer.

*Rhode Island, Providence. The New England Knitting Company, recently incorporated with capital stock of $10,000, will manufacture infants' mercerized hosiery, beginning operations about June 15 at 285 Thurbers Ave. All of the equipment will be new. Ten machines are now in Providence or have been shipped and twenty more machines have been ordered. Electric power will be used. Ralph B. Leinbach, secretary of the D. P. Harris Hardware Company, 48 Warren St., New York, is president, treasurer and buyer. Ernest P. Cordin, Jr., is superintendent.

*Tennessee, Bluff City. Organization has been effected by the Bluff City Hosiery Mills with R. W. Rush, president; W. B. Bachman, treasurer, manager and buyer. Work will be started on the construction of a building at once and it is expected that the manufacture of hosiery will be started within sixty days. As noted in previous reports the mill will be of brick construction, 50 by 30 feet, and sixty new machines will be installed. The company has authorized capital stock of $20,000.

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Enlargements and Improvements.

*Massachusetts, Stoughton. The 2-story brick addition being built to the bleaching and dyeing department of Charles Streeton & Son Company will be finished in about a week or ten days. They are manufacturers of men's, women's and children's ribbed underwear and union suits.

New Jersey, Hackettstown. The John Ashley Hosiery Company, who it was recently noted were making improvements, are having a dyeing and bleaching department equipped for handling half silk and cotton hosiery, in all colors, including black.

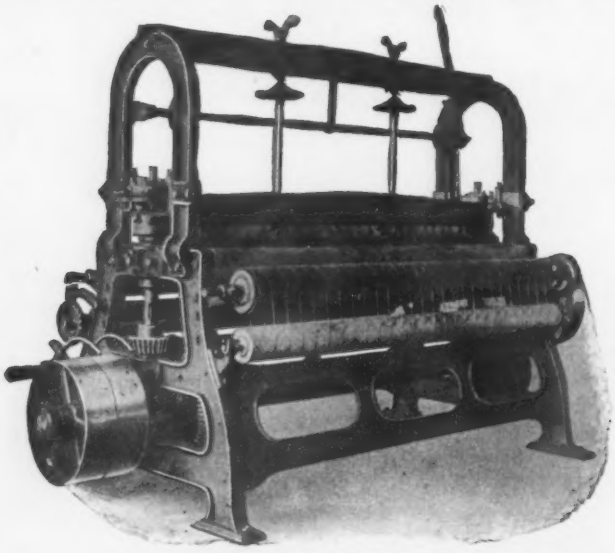
New York, Amsterdam. The Chalmers Knitting Company has purchased property adjoining the present plant and plans will be made for another mill to be erected on the site in the near future. The Chalmers Knitting Company manufactures mesh underwear which is extensively advertised and only last fall completed and moved into its present mill. A new product has been brought out in a light-weight ribbed underwear for winter use in its mesh fabric, to fill the demands of those who wear mesh underwear in summer but who demand a heavier garment for cooler weather.

*New York, Stuyvesant Falls. Several new knitting machines have been installed in the Crescent Knitting Mill and Ashley & Wait, the new proprietors, anticipate a busy season.

North Carolina, Albemarle. Construction work has been started on the additions and improvements being made by the Wiscassett Mills Company, manufacturers of women's seamless hosiery, children's hosiery and cotton yarns. No. 1 Mill will be connected with Mill No. 4 and the spinning equipment will be moved into this new space and new cards will be installed in the space vacated by the spinning frames. This will remove the necessity for night work in the carding department. Improvements in the power department were recently completed.

*North Carolina, Newton. Twenty-one new knitting machines, which it was recently noted had been ordered by the Fidelity Hosiery Mills Co., manufacturers of ladies' seamless hosiery, have been installed, making total equipment of 143 knitting machines, 10 ribbers, 14 loopers, 5 sewing machines. No further improvements are under consideration just now.

CHINCHILLA MACHINE



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For producing
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Let us start you--
On Peroxide bleaching.

We don't know it all, but our experience is so varied that we can probably cover your case exactly.

Very likely no new apparatus needed;
Cost will be satisfactory to your office.

It's up to you to get away from weakened, streaky, harsh, yellowing, inelastic goods, same as other bleachers are doing.

A bleacher who is not posted on Peroxide bleaching is out of date.

Let us help you.

THE ROESSLER & HASSLACHER CHEMICAL CO.
NEW YORK

Enlargements and Improvements.

New York, Brooklyn. The Standard Knitting Mills Company, Ralph St. and Grandview Ave., manufacturers of knit underwear, are making heavy increases in equipment and production.

*North Dakota, Fargo. The Fargo Knitting Mills are just getting ready to move into larger quarters, which will give double the space in the present quarters. All hand machines will be converted into electric power machines. It was noted recently that the capacity of the plant would be doubled.

Pennsylvania, Philadelphia. Several full fashioned knitting machines have been ordered by the Philadelphia Knitting Mills Company, manufacturers of men's and women's full fashioned cotton and silk hosiery and the new equipment is expected to arrive any day.

Pennsylvania, Philadelphia. The Union Knitting Mills of Penna., formerly located at 434 Market St., have removed their plant to larger quarters at 55 N. 3rd St., where they are continuing the manufacture of sweater coats with 20 knitters and 14 sewing machines, the production being sold through New York.

Pennsylvania, Philadelphia. The Wexler Knitting Mills, who have been located at 61-63 N. 2nd St., have recently removed to 29 N. 2nd St., where they have taken over and equipped the entire building consisting of three stories and basement, and also added 12 new knitting machines, bringing their equipment up to 40 knitters and 20 sewing machines which they are operating by electric power on shaker and fashioned sweater coats.

*Pennsylvania, Scranton. Additions to buildings are to be constructed by the Lackawanna Mills for storage and manufacturing purposes. It was noted recently that they have placed contracts for new construction work costing $20,000. Men's, women's and children's wool and merino underwear is manufactured.

*Pennsylvania, Terre Hill. Manufacturing has been started by the new Terre Hill Hosiery Company, which recently took over the Colonial Hosiery Mills, T. L. Seidel, proprietor. Some new machinery will be installed. As noted in previous reports this company has capital stock of $15,000 and manufactures fine seamless hosiery. R. B. Davis is president; S. S. Watts, vice-president; Warren E. Weaver, secretary and treasurer; and T. L. Seidel, manager and buyer.

*Wisconsin, Milwaukee. Knitted cloth for the new silk glove line of the Holeproof Hosiery Company, is being made by the concern, but as this department has not as yet been in full operation a detailed report cannot be given at this time.

*Wisconsin, Steven's Point. The first of the new equipment for the Racine Underwear Mills has been received. As noted in recent reports this business has been taken over by new interests and the plant is being increased. At present the company has capital stock of $25,000. Moritz Zarne is president; David Zarne, treasurer; and Fred Braun, manager and buyer.

*Wisconsin, Wausau. The business of H. C. Bonsa, a manufacturer of sweaters, underwear and hosiery, who formerly operated a small knitting plant at Plymouth, has been moved here and a plant opened at 712 Third St. Two new knitting machines have been added, giving a total of six knitting machines in the plant. The Plymouth plant has been discontinued.

Mills Starting Up.

*Georgia, Douglasville. J. T. Duncan, president of the new Douglas Hosiery Mills, reports that the new company, which took over the mill of the old Douglasville Knitting Mills, has been operating the plant for some time past. They are making half hose in black and tan, 200-needle goods, and the product is taking well with the trade and Mr. Duncan hopes to double the capacity at an early date. At present 50 machines are operated using mule spun yarns, 14s to 18s. The new company has authorized capital stock of $25,000, with $12,000 paid in. J. T. Duncan is president, treasurer, manager and buyer; and D. W. Brown is superintendent. The product is sold direct and through Cliver, Wright & Rainey, Cincinnati, and L. C. Vaughn, N. Y.

*Maine, Norway. Manufacturing has been started in the new plant of T. C. Hunton making women's and boys' hosiery on 24 knitting machines, 4 sewing machines, 2 winders, and several loopers. Mr. Hunton formerly operated in Brunswick under the style of the Brunswick Knitting Mill.

*North Carolina, Old Fort. The Century Knitting Mills, formerly of South Boston, Va., are occupying their new mill here. A building of brick and concrete construction, 144 by 60 feet, has been erected, also a steam power plant.

*Pennsylvania, Nazareth. Fred Wunderly, who purchased the Nazareth Knitting Mills as reported a few weeks ago, operated this business about six years ago. He expects to operate the plant again, beginning manufacturing within a few weeks. Whether he will organize a corporation or not is a matter which is now being decided. The plant is a hosiery mill equipped for manufacturing misses' hosiery and has 32 knitters, 36 ribbers and 12 loopers. Mr. Wunderly is at present in the automobile business.

*Pennsylvania, Pottsville. In a new building which has recently been erected for their use, Stein & Shock have started up a plant for the manufacture of ladies' ribbed underwear, the present equipment consisting of six knitting machines.

*South Carolina, Union. The Gault Mfg. Company is in operation making men's and women's hosiery. This company was organized last October by J. H. Gault, formerly treasurer and manager of the Excelsior Knitting Mills, Union, and new buildings have been erected.

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Old Colony Foundry & Fence Co.

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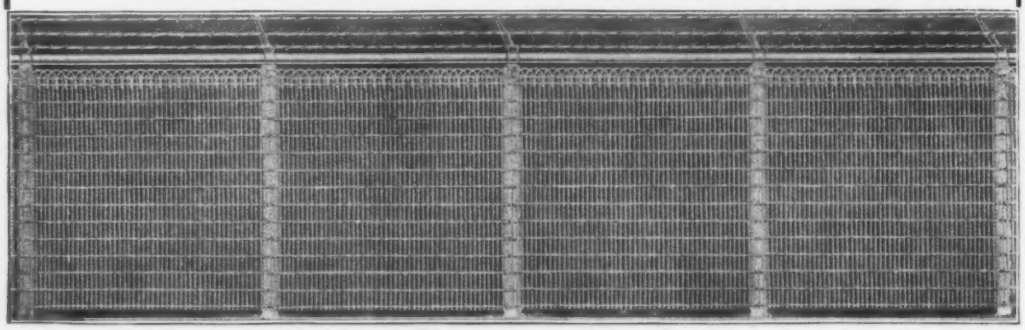

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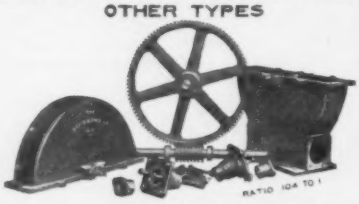

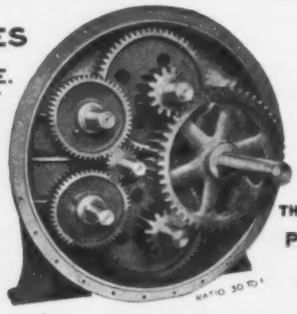

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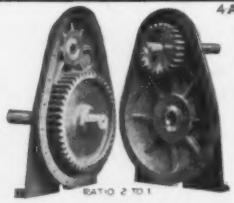

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NEW YORK

SPECIAL MACHINERY BUILT TO PLANS AND SPECIFICATIONS

Increased Efficiency

This Combination Drinking and Cooler Fountain was designed for one of the largest industrial plants

It is so durable, sanitary and efficient that it has immediately sprung into favor in many factories where a pure **bubbling and cool** drink is desired, as during the hottest days a cool, refreshing drink is supplied that results in **better feeling** and **better work.**

Rundle Spence Manufacturing Co.
Milwaukee, Wis.

WOOLEN MILL NEWS

New York, Montgomery. An addition, 17 by 72 feet, is being built to the dye house of William Crabtree & Sons, manufacturers of worsted yarns, with a branch plant at Newburgh. A new reinforced concrete dam is being erected replacing the old timber dam which was damaged by ice in the spring. No additional equipment will be installed at present.

*Ohio, Cleveland. Bids are being received by George S. Rider & Company, architects, for the construction of the projected recreation building for employes of the Cleveland Worsted Mills Company. As noted in an outline of the Cleveland Company's proposed extensions printed in February, the recreation building will be a 3-story structure, with a roof laid out for the use of employes in the summer time for various forms of recreation.

*Ohio, Cleveland. The addition being built to the plant of the National Woolen Company will be completed within the next 60 days and the new space is intended for a carbonizing department. This addition is 78 by 131 feet, 1 story high, of brick and steel construction. They have other plans under consideration for another structure, but are not quite ready to announce the details. The National Woolen Company has capital stock of $750,000 and manufactures wool shoddy, extracts and wastes.

Pennsylvania, Honesdale. Birdsall Bros. Company, manufacturers of blankets and flannels, are building a cistern to remove dyestuffs from waste water before discharging it into the river. The cistern is being built at the request of the State Department of Fisheries and is the first one to be built in this section.

*Pennsylvania, Philadelphia. The contract for the alterations and additions to the plant of the Alva Carpet & Rug Company, Oxford St., Frankford, has been awarded to a local builder who will commence the operation at once. The cost will be $22,000.

Rhode Island, Providence. While the Riverside Mills are running on short time the management is making many improvements, among them being the installing of a new equipment of boilers. Other important improvements are being made in the spinning department.

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Mills Starting Up.

*Kentucky, Louisville. The Sterling Spinning Company has begun the manufacture of woolen and merino yarns at 1361 S. 15th St. This company was recently organized by George Dunham, formerly superintendent of the Falls City Woolen Mills and has capital stock of $25,000. Two sets of 60-inch cards and 1,224 spindles is the initial equipment as noted in early reports of the plans of this company.

*Massachusetts, North Oxford. The mill at White Village consisting of two large stone factory buildings and 25 tenements, which has been idle since the Narragansett Worsted Mill went out of business nearly two years ago, has according to report been purchased by Harry D. Hewett and associates and will be started up under the name of the Hewett Textile Company making worsted goods and plush goods. It is stated that 26 looms will be installed in the upper mill and 14 looms in the lower mill and that extensive repairs will be made about the property. A few looms have arrived and men are at work hauling the machinery to the mill and putting it in place. Mr. Hewett was manager of the Derby Worsted Company and the Derby Fur Fabric Mfg. Company at Derby and Shelton, Conn., manufacturing imitation fur fabrics and worsted men's wear and dress goods, previous to the closing up of the affairs of these companies.

New Hampshire, West Concord. Thomas Hodgson, of Wilmington, Del., has purchased the plant of the Crescent Worsted Company in West Concord and after making some repairs and changes will start it in operation. The plant contains 3,500 spindles for making worsted yarns on the Bradford system. Mr. Hodgson has bought a house and will move his family to West Concord.

*Rhode Island, Carolina. John R. Hinchcliffe has been elected president of the new Carolina Company and Whiting Metcalf has been elected treasurer. Mr. Hinchcliffe is general manager of the Peace Dale (R. I.) Mfg. Company and Roland Hazard, secretary and treasurer of the Peace Dale Company is one of the directors of the new company. It is understood that the Carolina Mill will be started up in the near future and that the products will be sold through the offices of the Peace Dale Company at 334 4th Ave., New York. James Pickford, formerly of the Baltic Mills of the American Woolen Co., will be agent and superintendent.

West Virginia, Martinsburg. The Dunn Woolen Company has been incorporated with capital stock of $50,000 by Thomas L. Dunn, G. W. Buxton, F. A. Minor, F. C. Foreman and J. M. Dunn, all of Martinsburg. The new company has purchased the plant of the Martinsburg Worsted & Cassimere Company and according to report will increase the capacity of the plant about one-third. Improvements which are planned include an annex to the main building, 50 by 58 feet, and the installation of another set of cards with complementary machinery. The new company is made up of leading business men of the city. Thomas L. Dunn will be president; F. A. Minor, vice-president and secretary, and F. C. Foreman, treasurer. The Martinsburg Worsted & Cassimere Company operated two sets of cards and 20 looms.

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Mills Shutting Down.

Massachusetts, West Millbury. The Ramshorn Mill, which has been operating on woolen and merino weaving and knitting yarns, has been shut down indefinitely.

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Whiton Gear Cutter

We offer an attachment for use with our Gear Cutting Machine, to cut key seats for the Woodruff System of Keying. Write for description, circulars and price.

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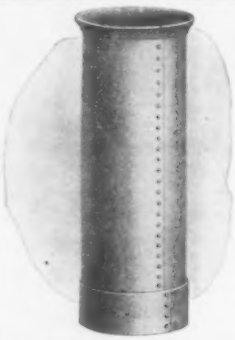

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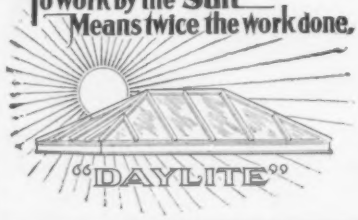

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Arlington Machine Works

TEXTILE FINISHING MACHINERY

ARTHUR BIRCH, Proprietor

Arlington Heights (near Boston), Mass.

FACTS AND GOSSIP.

.....

Connecticut, Central Village. It is rumored that outside interests are negotiating for the purchase of an old mill property here, which has not been in use for some time, for the purpose of utilizing it as a silk mill.

Connecticut, East Hampton. A company is manufacturing linen thread for the shoe and harness trades here under the name of the Franco-American Thread Company. It is a subsidiary company of H. & L. Rogez, Lille, France. Henry W. T. Mali & Co., New York, are the selling agents and bankers. C. Bruggeman is manager.

Connecticut, Pine Meadow. A loom to weave cotton paper felts up to 224 inches in width is being set up in the plant of D. B. Smith & Son, manufacturers of paper mill felts and cotton duck.

Connecticut, Shelton. Sidney Blumenthal & Co., Inc., have announced that just as soon as it is practicable the working force of the plant will be divided into two shifts, one working 52 hours a week as a day shift and the other working 47 hours a week as an evening shift with pay of each shift equal to the present 55-hour scale. It is announced that the working of the plant in two shifts is to be a permanent arrangement.

*Delaware, Wilmington. John Hand & Sons, who recently sold their throwing machinery in the annex here, report that no new broad silk or ribbon machinery will be installed in its place at the present time.

*Georgia, Elberton. The new Elberton Mfg. Company, which has taken over the plant of the Home Cotton Mills, has capital stock of $100,000. The company was incorporated by J. C. Plonk and R. P. Roberts, of Cherokee Falls, S. C., W. J. Fullerton of Ridgewood, N. J., and C. S. Child of Philadelphia.

Georgia, Lindale. The plant of the Massachusetts Mills in Georgia was closed for a few days on account of a break in the engine.

Georgia, Manchester. The Manchester Cotton Mills are now occupying the 2-story brick addition built during the winter and spring and have installed 3,200 spindles and a number of looms.

*Georgia, West Point. The equipment of the Lang Cotton Mills, who recently added new machinery, is now 5,200 ring spindles and 60 looms, operated by electric power.

*Illinois, Dixon. The business of the Resistal Fabrics Company, formerly of 312 North May St., Chicago, has been transferred to Dixon and will operate under the style of the H. W. Gossard Company. A business of waterproofing silk and cotton fabrics is carried on and employment is given to ten hands. The company has capital stock of $100,000. H. W. Gossard is president; R. C. Stirton, treasurer, and Sam S. Gossard, superintendent and buyer.

Illinois, Springfield. According to the report of an industrial survey made by the Springfield Commercial Association, this place is an ideal location, as regards labor, shipping facilities and fuel, for textile factories. Acting on the suggestions of the report the directors of the Association expect to take immediate action in inducing suitable factories to locate in Springfield.

*Indiana, Columbia City. Plans and specifications for the new Columbia Woolen Mills are in preparation. The mill will be 54 by 140 feet, with an ell 48 by 50 feet, 2 stories high, and a power house and dyeing department 24 by 114 feet. It is the intention of William Fisher, the president of the new concern, to have the building completed if possible by September 1.

Kansas, Kansas City. It is reported the Kansas City Cotton Mills are being reorganized under the name of the Wyandotte Cotton Mills Company, with capital stock of $125,000 and that the plant will be started up in the near future. A. L. Heibel will be president of the new company, and A. W. Pelt, secretary and treasurer.

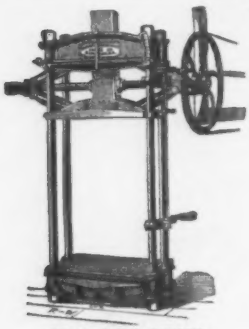
Kentucky, Louisville. It is reported that a sale of the property of the Bradford Worsted Spinning Company is in prospect. The plant has been operated under a lease by the American Woolen Company for the last year or two.

Maine, Ellsworth. At a meeting of stockholders of the Blood Knitting Mills it was unanimously voted to recommend the appointment of a receiver and Henry M. Hall has been named, with instructions to wind up the affairs of the corporation or dispose of it to others, or to form a stock company for the continuation of the business.

Maine, Skowhegan. A new elevator, new motors, 36 looms, two dressing frames and some finishing machines have been installed in the Commonwealth shoe factory building which was recently purchased by the American Woolen Company. Other looms will be installed until 95 looms are in place.

Massachusetts, Boston. Directors of the Bigelow Carpet Company have sent a circular letter to stockholders setting forth an offer that has been made for the stock of the company and recommending the acceptance of the offer. It is stated that bankers of responsibility have made an offer for the stock of the company of $175 per share in cash after payment of the regular dividend of $3 per share July 1, and a special dividend of $50 a share from the accumulated surplus of profits, which is to be paid upon the acceptance of the bankers' offer by seventy-five per cent. of the stockholders. The offer amounts to $228 a share. Kidder, Peabody & Co., Boston, are not mentioned in the circular as the bankers interested but it is believed that they are the proposed purchasers. A notice prepared for posting in the mills states that if the offer is accepted the mills will be continued in operation without interruption.

Massachusetts, Holyoke. If a suitable man can be found to take charge of the manufacturing and of the selling it is probble that the Beebe-Webber Company will be reorganized and the offer of the plant for sale withdrawn.



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Any Size Any Power

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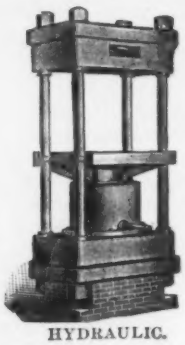

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ASHWORTH BROS.,

MANUFACTURERS OF

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THE CHAFFEE PATENT CLOTH BOARD,
Made of paper and wood,
Needs no covers,
Will not split or warp;
Not liable to break.

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BOX SHOOKS and CLOTH BOARDS.

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Thread and Silk SPOOLS of any description

Made from one piece, up to 6″ long and 3″ dia.

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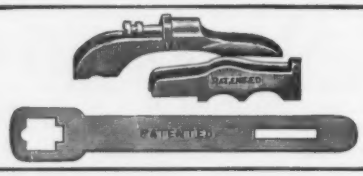

FACTS AND GOSSIP.

Massachusetts, Holyoke. William Skinner & Sons silk mills have gone on full time after having been on short time for several weeks.

*Massachusetts, Holyoke. The Donoghue Silk Mfg. Company's mill has been discontinued. As noted in a previous report the looms and other equipment have been sold to William Skinner & Sons.

Massachusetts, Holyoke. Instead of going on short time and curtailing a little each week the American Thread Company's local mills will shut down for ten days in July. The manufacturing departments will close July 3 and the finishing department will close July 8.

Massachusetts, Leominster. The Leominster Worsted Company, manufacturing fancy worsted suitings for men's wear, have experienced sudden demand for their products and all departments are running full time.

*Massachusetts, Littleton. There are no changes in the management or plant of Conant, Houghton & Company as a result of the incorporation of the business under the style of Conant, Houghton & Co., Inc., with capital stock of $50,000. Waldo E. Conant has been elected president; Daniel G. Houghton, treasurer; and E. H. Woodbury, superintendent. Waldo E. Conant is buyer. Elastic fabrics are manufactured.

Massachusetts, Lowell. The Merrimack Woolen Company at Dracut has resumed manufacturing after a brief suspension of operations to facilitate repairs on the dam.

*Massachusetts, Lowell. The Middlesex Company will not operate the worsted yarn equipment to be installed in the old mill of the Belvidere Woolen Mfg. Company on Howe St. C. Brooks Stevens, treasurer of the Middlesex Company, is understood to be interested, however. Mr. Stevens states that he has no information to give out at present.

Massachusetts, New Bedford. James L. Harring, of Fairhaven, formerly superintendent of one of the mills of the New England Cotton Yarn Company, heads a movement to build a cotton yarn mill in Fairhaven just across the Acushnet River from New Bedford. Negotiations are under way for land owned by the town.

Maryland, Hagerstown. The Windsor Knitting Mills, operating 210 knitting machines on fine seamless half hose, has been destroyed by fire caused by lightning striking the plant. The loss is said to be about $100,000.

Massachusetts, Fall River. A blaze in the picker room of the Union Cotton Mfg. Company caused considerable damage, largely by water.

Massachusetts, Fall River. Loss of about $700 was caused by fire in the plant of the Fawcett Silk Company, 189 Stafford Road.

Massachusetts, Salem. A fire starting in a leather factory wiped out the industrial center of Salem and destroyed half of the city. The loss is estimated at over $10,000,000. Among the score of manufacturing plants burned is the Naumkeag Steam Cotton Mills, manufacturers of sheetings and sateens on 116,000 spindles and 3,040 looms. It is stated that the Naumkeag Mills will be rebuilt immediately and that plans are now in preparation for new concrete buildings.

Michigan, Port Huron. The plant of the Summers Linen Company has been damaged by fire to the extent of $25,000. The origin of the fire is unknown. A branch plant is operated at Milford, N. H.

New York, Brooklyn. The plant of the Manhattan Shoddy Mills, 59 Frost St., has been damaged by fire.

New York, Waterford. The plant of the Waterford Woolen Company, Inc., has been destroyed by fire. The company's plant was burned several months ago and had been rebuilt only recently. The loss is estimated at about $10,000, partially covered by insurance. Shoddy was manufactured.

North Carolina, Randleman. A department of the Deep River Mills, Inc., containing about 100 looms has been destroyed by fire. The loss is estimated at $18,000; fully covered by insurance.

Rhode Island, Woonsocket. A waste shed on Pond St. owned by the Lawton Spinning Company has been badly burned. The loss is estimated at about $5,000. This fire is said to be the fourth which has started on property owned by the Lawton Spinning Company within a short time and is thought to be of incendiary origin.

Pennsylvania, Philadelphia. A fire of unknown origin destroyed a portion of the plant of A. Flanagan & Brother's Freeland Mills, Walnut Lane, Manayunk, in which they manufacture carpet and backing yarns on 11 sets and 2,100 mule spindles. The damage is estimated at $2,000 and will be repaired at once.

Pennsylvania, Reading. A fire, due to spontaneous combustion, in the storehouse of the Neversink Dyeing Company was handled with small loss and the plant is running as usual.

*Massachusetts, North Brookfield. Six men are engaged in putting machinery in place in the Oxford Linen Mills and it is reported locally that the plant will soon be ready to resume manufacturing. As noted in previous reports a new company has been organized under the name of the Phoenix Linen Company by the Oxford Shareholders' Committee to take over and operate the plant. Many of the families who came to North Brookfield from Ireland to work in the plant and moved away when the mills closed, have returned and are awaiting the reopening of the mills.

Massachusetts, Peabody. An accident to the engine at the Danvers Bleachery & Dye Works destroyed the cylinder and allowed steam under high pressure to escape into the engine room. Fortunately no one was in the engine room at the time and no one was injured. Temporary repairs will be made as soon as possible and in the meantime the electric lighting plant is installing motors to furnish 200 h. p. of electric current.

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and attachments. They give you an accurate record—adaptable to all purposes, extensively used for counting yards, picks and other units in textile manufacture.

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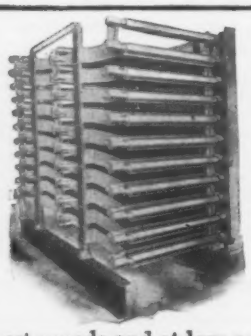

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It is used by the leading finishers because it operates at the highest speeds and at low cost. It saves steam, power and space. Let us tell you more about it.

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TAUNTON, - MASS.

Computing Hosiery Scale

No. 4020 TORSION BALANCE

Place pair of hose in holder and slide weight on beam until scale balances. Slide weight indicates weight per pair and also weight per dozen pairs. If specified can equip the balance with beam to one pound for UNDERWEAR. Write for Textile Folder.

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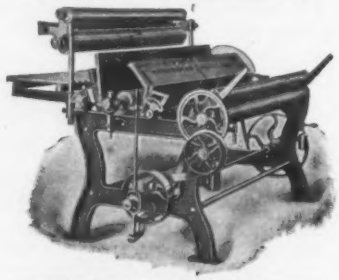

DEWING OR SPRAYING MACHINE

Curtis & Marble Mch. Co.
WORCESTER, MASS.

FACTS AND GOSSIP.

Massachusetts, Saundersville. Notices have been posted in the Saunders Cotton Mills that the mill will be shut down the first two weeks in August. Notices were posted early in order to allow the operatives plenty of time to arrange their vacations.

*Massachusetts, Webster. The space formerly occupied by the office of the Intervale Mills has been taken for burling and sewing and no additional machinery has been installed.

Massachusetts, Westboro. The business of Joseph S. Mason, manufacturer of narrow fabrics and tapes on 72 looms, will be conducted in the future as a limited partnership composed of Joseph S. Mason, Chester S. Mason, Joseph B. Mason and John L. Brigham. Mr. Brigham is a special partner and contributes $20,000 to the capital. Business will be done under the style of Joseph S. Mason & Sons. J. S. Mason will be president, treasurer and manager; C. S. Mason, secretary; J. B. Mason, assistant manager. The buying will be done by J. S. Mason and C. S. Mason.

*Massachusetts, West Millbury. The retirement of Henry O. Sutcliffe from the Manufacturers' Wool Stock Company took effect June 1. Arthur D. Windle has purchased the interests of Mr. Sutcliffe and will continue the business along the same lines under the style of the Millbury Scouring Company, A. D. Windle, proprietor. The Manufacturers' Wool Stock Company will be dissolved.

Massachusetts, Worcester. M. J. Whittall states that there is absolutely nothing in the reports that he has offered for sale the plants at Worcester and at Palmer and plans to retire.

Massachusetts, Worcester. The second floor of the new building at Central and Commercial Sts. has been leased by the Swananoa Mills, Inc., manufacturers of narrow fabrics. The Swananoa Mills leased the plant of the L. D. Thayer Mfg. Company at 47 La Grange St. several months ago and in May this property was severely damaged by fire.

Massachusetts, Worcester. A charter has been granted the American Fiber Company with capital stock of $150,000, classified as 1,500 shares preferred stock and 1,500 shares common stock of par value of $50. Edmund R. Ware is president; Stillman F. Morse, Jefferson, treasurer; Ralph L. Morse, clerk; and George E. Stearns.

*Michigan, Port Huron. It has not been decided whether the Summers Linen Company will rebuild the burned plant in Port Huron or whether it will be united with a new eastern mill the concern has under contemplation. A branch plant is operated at Milford, N. H.

*Michigan, Saginaw. The identity of the textile manufacturing concern that contemplates locating in Saginaw has not been given out, but it can be stated that no definite arrangements have been decided on up to this date.

Minnesota, Duluth. The Northwestern Textile Company has been incorporated with capital stock of $50,000 to manufacture textile fabrics. The incorporators are Philip Gordon Brown, president; James E. Dingwall, vice-president, and Percy N. Young, secretary.

Minnesota, Fergus Falls. A meeting of stockholders of the Fergus Falls Woolen Mills Company was held recently to consider the selling or leasing of the plant, which has been idle for several months. An offer to lease the property for two years was received, also another proposition to lease the mill for one year. The acceptance of these offers was voted down by the stockholders and the directors will now endeavor to raise money and reopen the plant.

*Mississippi, Kosciusko. The earlier report of the reorganization of the Kosciusko Cotton Mills was correct with the exception of the spelling of the name of the new company. The new concern is known as the Aponaug Mfg. Company. The plant is running and they expect to keep it in operation, but no changes will be made for the present. J. W. Saunders, of Tuscaloosa, Ala., is president and treasurer, and T. H. Moore continues as superintendent.

Nebraska, Omaha. E. F. Test, of Omaha, is trying to revive the plan for establishing woolen mills in the West and has worked up some interest in Salt Lake City and among the industrial agents of western railroads.

New Hampshire, Guild. The Granite State Mills, Fairbanks & Dorr, proprietors, have shut down on account of a strike among the weavers who demand a 55-hour week for the men the same as women weavers, also an increase of five per cent. in wages. The company declines to make these concessions and has shut down the mill.

New Hampshire, North Salem. It is reported the old Atlas Mill property occupied by H. I. Emmons Co., Inc., and the New Hampshire Shoddy Company will move to another location.

New Jersey, Alpha. Mr. Roeth, who is connected with the Alpha Silk Company, is considering plans for a silk mill to be located in Easton, Pa. Silk throwing machinery will be installed if the plans mature.

New Jersey, Groveville. The Uniform Dyeing Machine Company has been incorporated with capital stock of $150,000. The incorporators are John L. Kuser, Wm. McK. Morris, of Bordentown, and E. J. Morris, of Atlantic City.

New Jersey, Hopewell. A representative of a turkish towel company with a factory at Philadelphia, was here recently looking for a factory building. No financial aid is asked from the town as the company plans to rent a suitable building, acquiring ownership in time.

New Jersey, Newark. A new concern has been organized under the name of the United States Waist Band Mfg. Co., Inc., with capital stock of $100,000. The incorporators are Samuel Horowitz, Emanuel Davison and P. E. Levine, N. Y. City.

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Lord & Nagle Co., Publishers, 144 Congress St., Boston, Mass.

FACTS AND GOSSIP.

*New Jersey, Paterson. The former school building on Siegel and Amity Sts., which it has been noted will be remodeled and used for manufacturing purposes, will be occupied by the Novelty Silk Printing Company and not the Novelty Silk Company as stated in a previous report.

New Jersey, Paterson. The Rigby Silk Company, formerly located in Paterson, has been dissolved. The business was moved several months ago to Culpeper, Va., where it is now operating under the name of the Culpeper Silk Mills.

New Jersey, Paterson. The Textile Printing Company, organized in March with capital stock of $10,000, is located at 365 Crosby St.

New Jersey, Paterson. A new concern known as the London Silk Ribbon Mfg. Company has started operations in the Strange Mill.

New Jersey, Weehawken. The Hasco Dyeing Company, of this place, is reported to be making repairs at the old Clifton Silk Mill preparatory to using it as a dyeing plant.

New York, Brooklyn. A new company has been organized under the name of the India Cocoa Matting Mfg. Company, Inc., with capital stock of $25,000 to manufacture floor coverings. The incorporators are Samuel Helman, 112 Rivington St., New York; Simon Mendelowitz, 287 S. First St., and Adolph Loebelson, 1037 Bergen St., Brooklyn.

New York, Cortland. A charter has been granted the Tioughnioga Silk Company with capital stock of $75,000 to manufacture silk yarns and fabrics. It is understood the new corporation succeeds the Tioughnioga Silk Company which conducts a business of silk throwing in Cortland on 3,500 spindles. The plant has been under the management of James A. Moss.

*New York, Delhi. W. A. Lush, a silk throwster of Scranton, Pa., has examined the Delhi Silk Mill with a view to operating it under a lease, provided labor can be secured. The plant has been closed for several years but is in excellent order and the throwing plant is complete. The boiler, engine and many of the looms have been sold.

*New York, Gouverneur. The Chamber of Commerce of Gouverneur is unable to secure the amount asked by the Perfect Silk Throwing Company, of Shamokin, Pa., to bring that concern here and the Perfect Company will set a lower amount which it is believed will be subscribed.

New York, New York City. The Relma Ribbon Mills, Inc., have been granted a charter with capital stock of $100,000 to manufacture silk ribbons. The incorporators are Milton D. and Belle L. Adler, 303 W. 122nd St., and Harry Adler, 246 W. 129th St., N. Y. It is understood the new corporation is connected with H. Adler & Bro., selling agents of silk goods.

New York, New York City. The Windsor Dyeing & Finishing Company has been incorporated with capital stock of $100,000 by F. D. Buck, G. W. Dillman, M. L. Horty. The company is authorized to dye, finish and glaze all kinds of yarns and tubing.

New York, New York City. The Boulevard Lace & Embroidery Company, Inc., has been granted a charter with capital stock of $300,000 to manufacture textiles. The incorporators are Max Frunk, 1187 Lexington Ave., Solomon L. Greenthal, 977 Whitlock Ave., and Joseph Segal, 350 Broadway.

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Bar Belt Dressing Prevents Waste of Power and Fuel

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Stephenson Bar Belt Dressing has held to its uniform quality for twenty-four years.

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There are two brands,—*Red Label* for leather belts, *Green Label* for rubber, canvas, or balata belts.

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Stephenson Manfg. Company
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are especially adapted for use in Woolen Mills, IXXX Tin Plate body, side seam locked and grooved—made by machinery—every can alike. Special pattern top and bottom rings made of ¾ inch iron welded at joints and tinned. A wide "kicking band" beaded and soldered on the body. We can't tell all their good points here. Let us send full details.

Write for prices.

James Hill Mfg. Co., *Providence, R. I.*

FACTS AND GOSSIP.

Oregon, Klamath Falls. The Chamber of Commerce is negotiating with the Bandon (Ore.) Woolen Mills for the removal of their plant of Klamath Falls. R. E. L. Bedillion, manager and buyer of the Bandon Mills, recently met the directors of the Chamber of Commerce and a number of local business men to discuss the project. Several months ago the Chamber of Commerce offered inducements to John P. Wilbur to remove the Wilbur Woolen Mills, of Stayton, Ore., to Klamath Falls.

*Pennsylvania, Doylestown. Contract has been awarded to David D. Nyce for construction of the new silk mill which will be built as an extension of the Bitzer Bros. Silk Mill. The cost is $10,400.

*Pennsylvania, Honesdale. It is not expected any further changes will be made by Birdsall Bros. Company after the completion of the cistern which is being built at the suggestion of the State Department of Fisheries to remove dyestuffs, soaps, etc., from waste water before discharging it into the river. This company manufactures blankets, flannels, and makes flannel shirts, and has equipment of 3 sets of cards and 34 looms.

*Pennsylvania, Lopez. The new silk mill to be known as the Lopez Silk Mill will be ready to begin manufacturing about August 1. The men interested include Dr. J. L. Christian, H. M. Kellogg, and J. P. McGee, all of Lopez. It is understood the new company will be a branch of the Mason Silk Mills of Paterson.

*Pennsylvania, Marysville. In May it was noted that a canvass of the town was being made by the Board of Trade to see how many employes could be secured for a silk mill. It is now practically assured that the new industry will locate here as a representative of the silk concern and the Board of Trade have surveyed a plot of ground on Spruce St. which is being considered as a site. It is expected that the concern will employ 150 hands and that a building, 154 feet long by 52 feet wide, with a wing 49 by 52 feet, will be erected. Plans are to be completed so that work on the erection of the building can be started August 1.

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We have been supplying many of the largest Textile Manufacturing Plants with Second Growth **HICKORY PICKER STICKS** for twenty-five years. We are in a position to make you right prices, and to furnish you with just such quantities as you desire. Our Picker Sticks are made of the best hickory possible to obtain, and are thoroughly guaranteed. Sticks are made and fitted exactly as per sketch or sample, which should always be sent with first order.

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We build a simple, powerful and very effective machine for removing gears and pulleys from shafting. Many mills use them. **Only costs $8.00.** Saves its cost in time and breakage.

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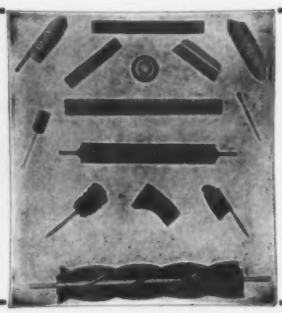

Mason Brush Works
Worcester, Mass.
Agt. and Mgr.
CHAS. A. O'NEIL

FACTS AND GOSSIP.

*Pennsylvania, North Wales. With the removal of the equipment in the branch mill at Tullytown to the main plant at North Wales, the Acorn Web Mills, Inc. now have 44 looms in the local plant. The Tullytown mill is closed.

Pennsylvania, Philadelphia. Vicente Aldrete, proprietor of a knitting plant in Chihuahua, Mexico, is now in this city for an indefinite period, looking up machinery and supplies for his plant, in which he manufactures various lines of knitted fabrics.

Pennsylvania, Philadelphia. The Joynes Campbell Co., operating a plant on silk cords, tassels, etc., by electric power at 1666 Oxford St., Frankford, have recently had a permit granted for the erection of a new building to be located at 5629 Edmund St., to be one story, of brick, 36 by 40 feet, into which they will remove, as well as the Standard Silk Winding Co., operating 10 frames on commission winding, now located in the same building on Oxford St.

Pennsylvania, Philadelphia. Sykes Bros., Inc., to take over the business of Sykes Bros., Hancock and Huntingdon Sts., spinners of woolen and worsted yarns with 14 sets wool cards, 3,286 spindles, 2 combs, 3 cards and 1,528 worsted spindles, are applying for a charter with Walter T., Franklin B. and David L. Sykes as incorporators.

*Pennsylvania, Yardley. The plant of the Cold Springs Bleachery is being continued in operation by the receiver, Theodore C. Search, and is in a position to take further business.

Rhode Island, Bridgeton. The Premier Worsted Mills have begun to operate on a day and night schedule. The plant has been running overtime three nights a week for the past two months.

*Rhode Island, Carolina. No date has been set for the starting up of the Carolina Mill by the new Carolina Company which is to operate the plant. John R. Hinchliffe, the general manager of the Peace Dale (R. I.) Mfg. Company, and president of the Carolina Company, states that he hopes to have the mill running within the next few weeks.

*Rhode Island, Central Falls. J. S. & W. E. Meehan, silk manufacturers, have moved from Pawtucket to new quarters in the Samoset Bldg., Central Falls, as noted in a previous report. They have also secured a charter under the name of the Walton Mfg. Company with authorized capital stock of $100,000, also previously noted. They have not organized and do not intend to organize this corporation for the present, continuing to do business under the style of J. S. & W. E. Meehan.

Rhode Island, Greystone. Business at the plant of Joseph Benn & Sons, Inc., is increasing, according to local reports and more employes are engaged than for some time past.

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By the use of the wonderful bacteriological preparation discovered and prepared by Dr. Jean Danysz, of Pasteur Institute of Paris. Used with striking success in the United States and Europe for many years.

DANYSZ VIRUS

contains the germs of a disease peculiar to rats and mice only and is absolutely harmless to all animals other than mouse-like rodents. Because of the feverish condition caused by the Virus the Rodents die in the open. The disease is also contagious to them. HOW MUCH TO USE: For factory and mill buildings, from one to two dozen tubes for each 5,000 square feet of floor space. PRICE: One tube, 75c; 3 tubes, $1.75; 6 tubes, $3.25; one dozen, $6.00.

DANYSZ VIRUS LIMITED, Dept 4, 72 Front Street, New York

If You Could Reduce the Power Required to Drive Your Pickers

Without Decreasing the Amount of Stock Handled per 10-hour Day—Wouldn't It Be Worth While?

TRADE MARK REGISTERED IN **NON-FLUID OIL** UNITED STATES PATENT OFFICE

will save much of the power required to drive your pickers, and actually render them more efficient. Unlike ordinary oil, Non-Fluid Oil does not work out of bearings and permit them to run hot and thus increase wear and power consumption, but clings to the bearing surface until entirely consumed. Unlike ordinary grease, Non-Fluid Oil does not require bearings to run warm before beginning to lubricate and when shaft is idle will not gum or corrode.

The use of Non-Fluid Oil reduces the percentage of "mill seconds" because it does not drip or spatter.

There are many other reasons why you should use Non-Fluid Oil. Write for samples and discover them.

N. Y. & N. J. LUBRICANT CO., - 165 Broadway, New York City

BETTER WORK WITH NO INCREASE COST

The use of Wyandotte Textile Soda and Wyandotte Concentrated Ash is not limited to one department of the mill, but the principle which they represent may be profitably applied to several different processes.

Doubtless in all your experience you have never used any article of an alkali nature that could be applied to so many different purposes as are claimed for

Wyandotte Textile Soda

and

Wyandotte Concentrated Ash

And because of the unusual nature of these claims it is appreciated that they must be proved before you can be asked to accept them.

All we ask is that you withhold your decision regarding these products until you give them a trial. The satisfaction which you feel after trying them will do the rest. We have no doubt of your continuing their use, because they do the things you never could do with other alkalies.

Ask us to "show you." For further information write us.

Order from your supply house.

The J. B. Ford Co., Sole Mfrs., Wyandotte, Mich., U. S. A.

This soda has been awarded the highest prize wherever exhibited.

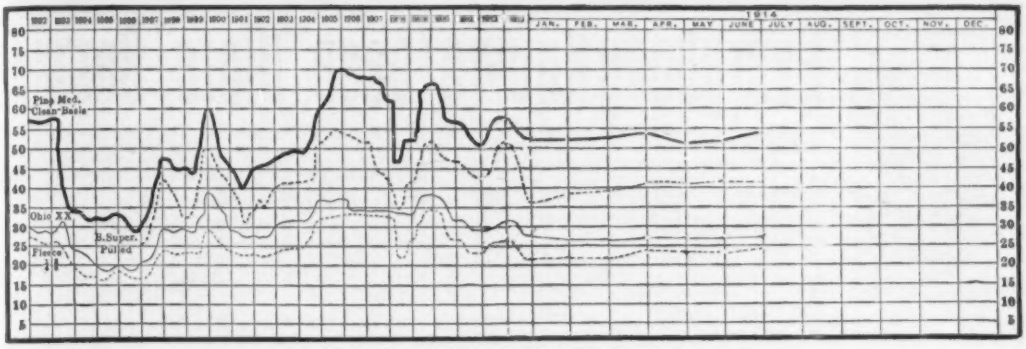


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

While the wool market continues firm, traders are discussing the question as to whether the high point in the present advance has been reached. Many are inclined to think that it has, and that values will decline in the near future. The Claflin failure in New York has had a depressing effect on the market and this in connection with the unsatisfactory closing of the heavy weight season and the uncertainty that surrounds light weights is largely responsible for the lack of confidence that is now prevailing. Prices, however, are firmly maintained and so far as the statistical position of the market is concerned there is little to warrant the fears that now disturb many wool dealers and manufacturers. Foreign markets are firm, but American buyers have bought sparingly. Little can be said at this writing regarding the goods market as the light weight lines have not yet been opened, although some business has been transacted in advance of the regular openings. These sales have been on serges and other staple goods. The immediate future of the wool market depends in a large measure upon general business conditions which are involved at the present time in many complications. The mills are getting few repeat orders on heavy weights and for this reason will need business on light weights earlier than usual in order to keep the machinery busy.

WOOLEN MILL NEWS

New Mills.

Pennsylvania, Philadelphia. One of the upper floors of the Anchor Combing Mills, 25th and Spruce Sts., has been leased to Fred. Haggas, who has installed an equipment of 800 spindles for the spinning of worsted yarns (Bradford system) up to 32s, operating the plant under the name of the Matuneck Worsted Mills, and selling the production direct.

Pennsylvania, Philadelphia. The Sydney Worsted Company are equipping a plant at Howard and Palmer Sts. in which they will manufacture lines of woolen and worsted dress goods, which they will sell through N. Y. James Sutcliffe is the manager and buyer.

Enlargements and Improvements.

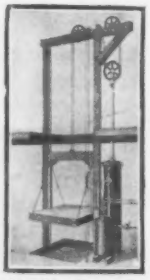
Connecticut, Bridgeport. Construction work has been started on a 3-story building for the Salt's Textile Mfg. Company.

*Connecticut, Somerville. An addition, 60 by 80 feet, to the dyeing and finishing department of the Somerville Mfg. Company has been completed.

LOGWOOD BLACKS
HOW TO TELL THEM
We have been asked to furnish a means of identifying Logwood Blacks.
A simple characteristic test for a Logwood Black is to spot the dyed material with strong oil of vitrol. The spot turns slowly to a dull, bricky red.
This test will identify unfailingly Logwood Blacks.
AMERICAN DYEWOOD COMPANY
NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT

Direct Acting

Over 1000 in Daily Use



Double Geared

Everybody Knows these "More" Boys

And so you'll be interested if you are not a "DEAD ONE"

JOS. BENN & SON had us change their electric elevators in the big plant at Providence, R. I., to Ridgway Steam-Hydraulic. Then they built a big new addition and got four more. Then they got them for their Bradford (England) works. (N. B.—**They are getting Ridgway Elevators to protect themselves from suffragettes.**)

D. B. MARTIN & CO., the great packers, got four Ridgway Steam Hydraulic Elevators for their Philadelphia works. Now we are making them SIX MORE for their new Baltimore plant. (N. B.—**They are buying Ridgway elevators for their health.**)

THE CONTINENTAL CAN CO. have just had us equip their Syracuse plant with the Ridgway Steam-Hydraulic Elevator. Now we are equipping their new Baltimore plant. (N. B.—**They are buying Ridgway Elevators for Baltimore malaria.**)

THE HAMMERSCHLAG PAPER CO. equipped their big Patterson (N. J.) mill with Ridgway Steam-Hydraulic Elevators. They have just ordered more for their new addition, 20,000 capacity this time. (N. B.—**They are gteting Ridgway Elevators for Jersey Mosquitoes.**)

THE R. J. REYNOLDS TOBACCO CO. had us change their elevators in the Winston-Salem (N. C.) plant to Ridgway Steam-Hydraulic. We are now shipping them some more. (N. B.—**They are getting Ridgway Elevators for the hook worm.**)

THE C. H. GEIST CO. have gotten many elevators for their Freeport, Atlantic City and other plants. They are now getting them for their Roanoke (Va.) plant. (N. B.—**They are getting them for Virginia Measles.**)

But we will run out of space if we don't condense, and so

HERE ARE A LOT MORE OF THE "MORE" BOYS:

Standard Oil Co.	**Two More**	**United Gas Improvement Co.**	**Dozens More**
The International Harv. Co.	**Five More**	**Hammermill Paper Co.**	**Three More**
Cluett, Peabody & Co.	**Three More**	**Paul A. Sorg Co.**	**Three More**
Consolidated Gas Co.	**Lots More**	**People's Gas Co.**	**Five More**
Proctor & Gamble	**Four More**	**Buffalo Bolt Co.**	**One More**

And hundreds more if we had room.

Now, just think of any fellow who has steam available buying the ordinary man killing expense-piling elevators, cheap, "chuck-together elevators"—When we give elevators that

Go at virtually no cost—Fool proof—No repairs—Always go—Go when engine is shut down—Guaranteed for life—**NO PAY UNTIL MAKES GOOD.**

Do you wonder that all concerns with a little bit of engineering brains

"HOOK 'LR TO THE BILER"

CRAIG RIDGWAY & SON CO., Coatesville, Pa.

Elevator Makers to Folks Who Know

ALFRED SUTER TEXTILE ENGINEER

200 Fifth Avenue - New York

Importer of all the latest types of

Testing Instruments.

Conditioning Ovens.

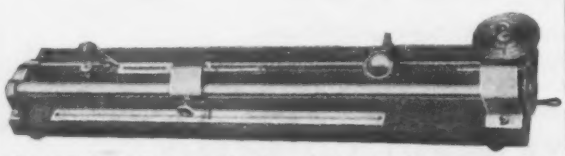
Yarn Numbering Scales.

Yarn Reels.

Universal Cloth and Yarn Analyzing Set.

Combined Yarn and Cloth Strength Tester
(adapted for hand, motor drive or oil plunger)

Microscopes. Pick Counters.



New 20 Twist Tester, with take-up registering device and magnifying glass for spinning twist. Also has even tension attachment

Gambs

Micro-Thread Counter

with magnifying power of 6, 20, and 40 times

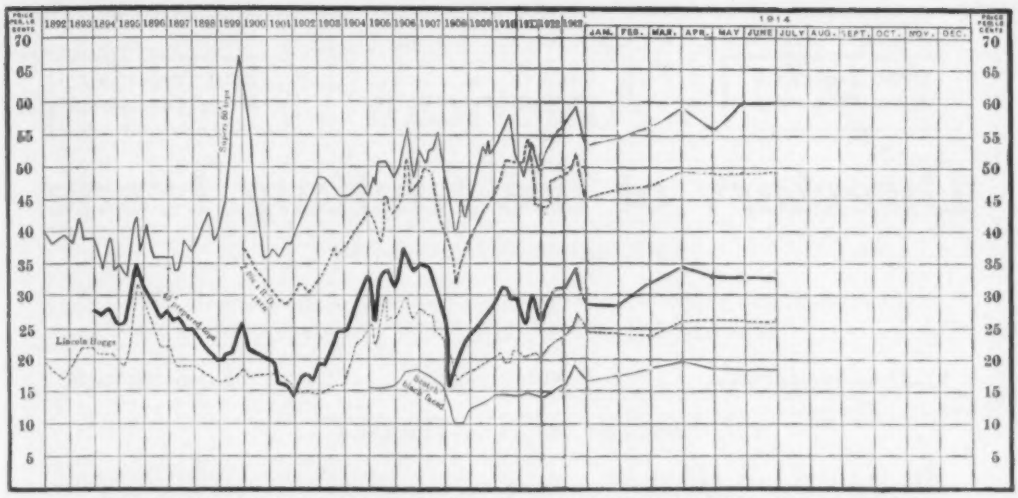


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

BRADFORD MARKET

Business is satisfactory to such as have old supplies of raw material to sell. Dealers in spinning wastes, for example, find the contracts they made six months ago are quite valuable. Topmakers are not losing on the fine tops they sell, but on the other hand their sales amount to nothing that matters. Purchases are confined to the very strictest limits and everything possible is being done to avoid the use of fine wool. Those botany spinners who have the best of the market in all circumstances can only call their present position bad and that of the smaller firms is worse. Manufacturers of fine worsted are losing money upon all the yarn they are converting into pieces and this reduced price is still too high for their customers.

It is the case also in the crossbred department that rates lower than those of the day are too high for the trade in fabrics. The proof is that crossbred spinners cannot obtain delivery instructions under contracts booked at 1 1/2 cents less than the present. It is true that those contracts were mostly placed speculatively in February, but the fact remains that demand has not followed the rise. Short time and standing machinery are still the rule and, on the basis of probabilities these troubles will grow worse before there is an amendment.

The country wool fairs and sales have opened and dealers in English wool, who all badly need new business to compensate them for the last twelve months, are disposed to buy at 1 cent less than last year. This is the basis on which the wool is changing hands, but domestic spinners do not encourage dealers that they are going to pay the price. Spinners of English qualities have few orders and considerable stocks of yarn and their purchases are likely to be halfhearted believers in a demand that has not made itself felt.

WOOLEN MILL NEWS

*Maine, Sanford. It has not been definitely decided whether to use brick or cement construction in rebuilding the dye house of the Goodall Worsted Company. It is probable that further enlargements and improvements contemplated by this concern will not be made this year.

New Hampshire, Enfield. It is proposed to enlarge the Baltic Mills of the American Woolen Company, according to report, by constructing an addition 170 by 80 feet, 3 stories high, and making the plant a fourteen-set mill. At present eight sets and 63 looms are operated on fancy woolens and overcoatings. At the Boston office of the American Woolen Company it was stated that plans for enlarging the Baltic Mills were not definitely settled.

*New Hampshire, Manchester. The 1-story addition being built to the plant of the Amoskeag Mfg. Company on Granite St., east of the Granite bridge, will be 160 feet long, by 72 feet wide, and will be used for worsted carding and preparing. There will be eight worsted cards and nine gill boxes set up in the new space. The Land & Water Power Department of the Amoskeag Mfg. Company is putting in the foundation for the building.

New Jersey, Bound Brook. The Bound Brook Woolen Mills are building a large new dye house. They are also increasing the power equipment besides installing three new twisters and a new washer.

1914 Edition Now Ready

American Directory of the Knitting Trade

32d Year of Publication

"THE RED COVERED BOOK"

One hundred and forty-two new mills and thousands of changes since 1913.
The edition is limited, and it is well to order now.

Handy Size for the Pocket. **PRICE $1.50** **Nearly 700 Pages**

What It Contains

Full report of every knitting mill in the United States and Canada, arranged alphabetically by states and towns, giving capitalization; names of the officers, including superintendent and buyer; kind of goods made; number of knitting machines, number of sewing machines; whether the mill dyes or bleaches or finishes; kind of power; number employed; selling agent; *kind and sizes of yarn bought.*

Special copyrighted maps of the mill districts showing the cities and towns where there are knitting mills. It is indexed so that any town may be quickly found.

Carefully classified index of manufacturers according to kind of goods made. All the manufacturers of the same kind of goods are grouped together.

Alphabetical index of manufacturers giving the page number where full report of mills may be found.

Knitting yarn manufacturers, giving classified lists of mills spinning yarns for the knitting trade.

List of dyers, bleachers, finishers, printers, etc., making a specialty of knit goods work.

Manufacturers' selling agents and commission merchants handling knit goods; the name of the person in charge of the knit goods department is given. When a concern is sole agent or special selling agent for certain mills the names of the mills sold for follow the agent's name.

New York Buyers of knit goods for out of town jobbers and large retailers, giving street addresses of buyers and names and addresses of concerns for whom they buy.

New York addresses of out of town jobbers, giving the New York address at which representatives of out of town jobbers can be reached.

List of Jobbers of knit goods, telling the kind of goods handled and the name of the buyer; very complete.

Department stores and large retailers handling knit goods.

An index of machinery and supplies used in the manufacture of knit goods, also yarn dealers supplying knitting yarns.

For the Sales Department:

The demand of the selling end of the industry for a separate book giving only the particular lists it needs in its work is supplied by

The Knit Goods Trade

PRICE $1.00

A handy 300-page book giving Classified Index of Manufacturers, Jobbers, Department Stores, Large Retailers, New York Buyers, New York Addresses of Out of Town Jobbers, and Manufacturers' Selling Agents.

Published by the
LORD & NAGLE COMPANY
Textile Publishers, 144 Congress St., Boston
New York Philadelphia Chicago

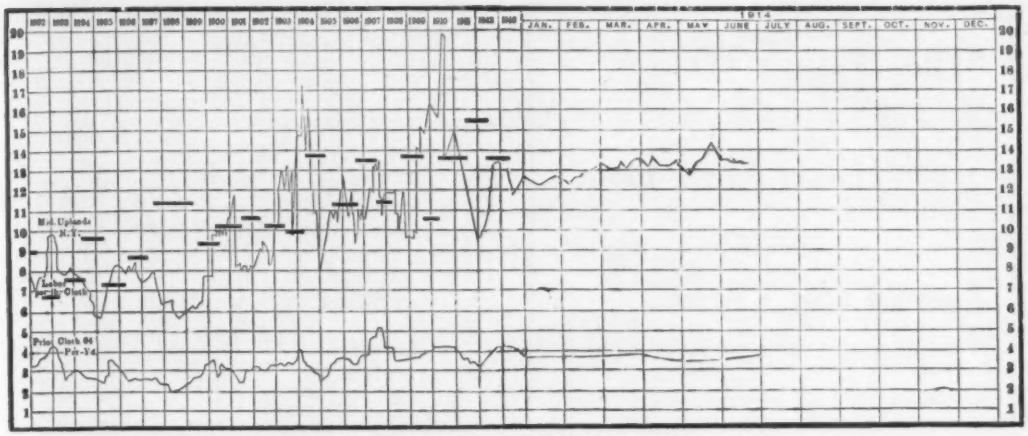


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

Favorable reports as to the growing crop and unfavorable state of the goods trade have combined to depress the price of cotton. The reports from all parts of the cotton belt have been to the same effect, that conditions are exceptionally good for a bumper crop. The goods trade both in this country and abroad continues unsatisfactory and Lancashire spinners claim that they are doing business at a loss. There is talk of short time, but so far the program has proved impracticable owing to the conflicting interests involved. The movement of American cotton into sight from Sept. 1 to June 26 is reported by the Chronicle for a series of years as follows:

Year	Bales
1913-14, June 26	14,052,767
1912-13, June 27	13,214,795
1911-12, June 28	15,140,149
1910-11, June 30	11,513,556
1909-10, July 1	10,138,780
1908-09, July 2	13,224,949

The same authority estimates the world's visible supply on June 26 at 4,132,575 bales, as compared with 3,491,909 bales on the corresponding date in 1913, 3,384,581 bales in 1912, and 2,433,133 bales in 1911.

Pennsylvania, Easton. It is reported that a new silk throwing company is being formed here.

COTTON MILL NEWS

New Mills.

*Alabama, Alexander City. Good progress is being made toward the construction of the new Bettie Francis Cotton Mills, organized by Benjamin Russell and T. C. Russell, president and treasurer, respectively, of the Russell Mfg. Company, Inc., and it is expected the plant will be completed and equipped ready for manufacturing by October 1. As noted in previous reports the product will be extra carded, double roving, high grade 24/1 underwear yarns, and 5,472 spindles will be the initial equipment. The plant will be constructed and arranged so that this number can be doubled later on if desired. The Bettie Francis Cotton Mills have capital stock of $100,000. Benjamin Russell is president and buyer and T. C. Russell is treasurer.

*Georgia, Cedartown. The proposed new company being organized to equip the buildings formerly occupied by the Cedartown Knitting Co. as a cotton yarn plant will be organized under the name of the Peerless Cotton Mills with capital stock of $250,000. Some enlargements and improvements will be made at the mill property and about 17,000 spindles will be installed for making 24s to 40s yarns. A. E. Young, Cedartown, will be president; and A. H. Van Devander, Cedartown, secretary. C. W. Bateson, of Brooklyn, N. Y., is interested.

*North Carolina, Belmont. R. C. Biberstein, of Charlotte, N. C., is the architect-engineer in charge of the new plant for the National Yarn Mills Company, recently incorporated. Plans and specifications will be completed at an early date

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.

"The Whitest White
makes
The Lightest Light"

Let in the Light

Get all the natural light you can. Artificial light is never so good as daylight and it costs real money. Let the sunlight into every nook and corner of your mill. It radiates health and increases efficiency. Use the right mill white.

Glidden's
DAY LITE
Mill White

is the right mill white—the mill white that stays white—the mill white that will not crack nor scale. Write us for full information.

The Glidden Varnish Co.
Cleveland, Ohio

Factories
Cleveland, Ohio Toronto, Canada
Branch Warehouses
New York Chicago London

COTTON MILL NEWS

and will call for a plant of 10,000 spindles for manufacturing combed peeler yarns.

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Enlargements and Improvements.

Alabama, Anniston. It is announced that the Anniston Yarn Mills will soon begin the construction of a building, 216 by 75 feet, of brick, in which will be installed 3,264 spindles. A cotton warehouse and ten tenement houses for operatives will also be built. The addition will practically double the present building and according to J. T. Gardner, treasurer and buyer, construction work will be started soon.

Alabama, Anniston. A number of new twister spindles and spooler spindles have been installed in the plant of the Anniston Cordage Company. Arrangements have also been made to drive the picker room by an electric motor, purchasing current, in order to relieve the steam plant of a further load .

*Alabama, Huntsville. There will be no further additions at present at the plant of the Lowe Mfg. Company. The contract was recently awarded for an addition to that engine room to be built at a cost of $7,000.

Alabama, Huntsville. The plant of the Merrimack Mfg. Company is being overhauled and a large amount of new machinery will be installed during the summer, including 300 automatic looms to weave 40-inch goods.

Alabama, Selma. A waterproofing plant, a printing press and a number of sewing machines were recently installed in the plant of the Valley Creek Cotton Mills Company to convert the mill's product into bags. Every department of the mill is now being operated on full time and there are rumors that in the near future enlargements will be made and the force of hands greatly increased, although no announcement has been made as to this. The product of the concern is osnaburg cloth which is waterproofed and converted into cement bags. 10,800 ring spindles and 320 looms are operated. The capital stock is $150,000. Jesse Peterson is president; James Reid, treasurer; W. R. Shearston, agent and buyer; and J. W. Pierson, superintendent. Goodin, Reid & Co., Cincinnati, are the selling agents.

Connecticut, Jewett City. Large orders have been received by the Ashland Cotton Company and 100 new looms, a number of winders, motors and other machinery are being installed. On July 1 the plant will start on a day and night schedule which it is expected to continue for an indefinite period. This increase of business will also affect favorably the W. A. Slater Mills, Inc., which will supply some of the yarn to be used by the Ashland Company. During the past few years the plant of the Ashland Cotton Company has been entirely overhauled and new machinery installed, including automatic looms and electric power equipment. A large 2-story weave shed has been erected and this will probably be enlarged later on. With the present addition in equipment the plant will contain 27,000 spindles and 800 looms.

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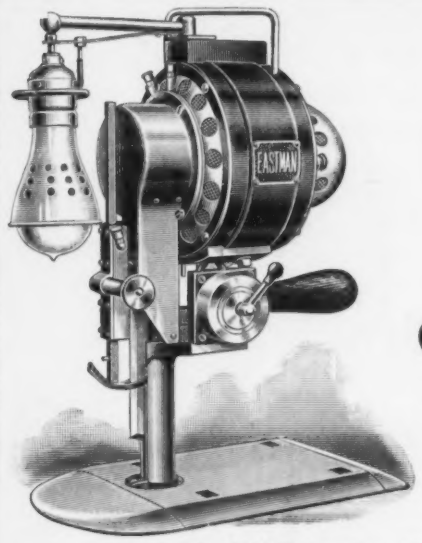

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As an economical shop unless it is equipped with an

Eastman Cutting Machine

Speed, accuracy, economy and durability combined so as to spell profit for every user.

Free trial for all styles

Straight Knives, Round Knives, for Direct or Alternating Current

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USING IT?

If not, then better start at once

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TRADE-MARK

SIZOL is the most efficient sizing material known to textile manufacturers. It is unfailing in improving the quality of goods and positive in checking much waste. Write us for samples and latest information on improved sizing.

THE SEYDEL MFG. CO.

Forrest Street **Jersey City, N. J.**

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Dyers, Bleachers, Gassers

Dyers of Colors Fast to

SUN AND BLEACHING

Aberfoyle Manufacturing Company

CHESTER, PA.

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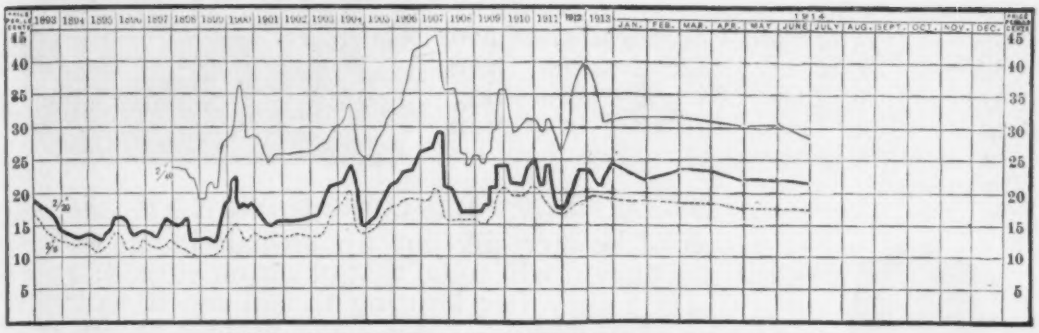
Philadelphia

746 Insurance Exchange
Chicago

Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

THE COTTON YARN MARKET

The cotton yarn market has been extremely quiet. It has been a number of years, according to some dealers, since a month has passed where so little business has been transacted as in June, 1914. Manufacturers in all lines are buying only on a hand to mouth basis and those who have had stocks ahead have frequently used every effort to substitute some sizes on hand in stock, even though it was a more costly yarn rather than purchase the yarn required. Spinners have held their quotations remarkably strong in the face of the slow demand. There is a good supply of yarns held by dealers in Philadelphia and there is little doubt but that 90 per cent. of this yarn cost a cent or more over today's quotations. The principal reason why manufacturers are not buying yarns is their lack of orders. The general feeling prevailing among those connected with the textile industries is anything but optimistic. The one bright feature in the trade is that when manufacturers do receive orders, they are with few exceptions, for immediate delivery and with urgent requests to express the goods. This would seem to show that there is not a large accumulation of manufactured fabrics.

Manufacturers of low priced fabrics in the men's wear lines are extremely dull, but among the better grades there is some little activity. There is little demand for staple dress goods, but here and there some manufacturers of novelties have been able to do a profitable business. Upholstery manufacturers are dull and ingrain carpet manufacturers are almost at a standstill, but other lines of carpet manufacturers report finding a little business. Tapes and narrow fabrics continue in fair demand and this line together with the towel trade are the redeeming features of a dull market.

Eastern Cops

6s	19¼
8s	19¼
10s	21¾
14s	22¾
16s	23½
18s	23¾
20s	24¼
22s	24¾
24s	25¼
26s	25¾
30s	26¾
34s	29
36s	30
40s	29½

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler

12s	23
14s	23½
18s	24½
20s	25
24s	26½
26s	27½
30s	28½
36s	36
40s	38
45s	42
50s	45
55s	46½
60s	51½

Eastern Two-Ply Warps, Carded Peeler

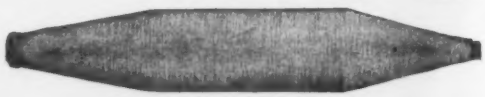
2/30s	29
2/36s	36
2/40s	38

We make *singles* in all sizes for the *weaving trade* put up on cops. From your experience you know the slightest variation in the silk used for weaving vitally affects the appearance of the finished goods. Uniformity and freedom from imperfections is the distinguishing feature of our spun silk. Our reputation as silk manufacturers is behind every order we make for you.

Silk Hosiery has come to stay. If you use our special hosiery silk put up on half pound cones your production will equal that of cotton yarn because our silk is a very free knitting thread and it will not wear out your needles. We make prompt shipments for all sizes. Our representative will be glad to figure on your special requirements

Nonotuck Silk Company

Established 1838
SPUN SILK YARNS
Florence, Mass.



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Windsor Locks, - Conn.
MANUFACTURERS OF
Novelty Yarns — Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.
Cotton Warps — on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.
Mercerized Cotton Yarns — Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

MONUMENT MILLS, HOUSATONIC, MASS.
HIGH GRADE COTTON YARNS White, Colors, Bleached
On Beams, Jack-Spools, Cones, Skeins and Chain Warps
FAST-BLACKS & COLORS | For Woolen Mills a Specialty | WE SELL DIRECT

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Mills RAINBOW, CONN.

JACQUARD CARDS
THE MERWIN PAPER CO

SPECIALTIES
FOR ALL PURPOSES
Inquiries Solicited
Address HARTFORD, CONN.

2/45s	42
2/50s	45
2/60s	53

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THE PHILADELPHIA MARKET

7s and coarser	20½
8s and 9s	20½
10s	20½-21
12s	21-21½
14s	22
16s	22½
18s	23
20s	23½
22s	24
24s	24½
26s	25
30s	26
40s	32
50s	38

Southern high grade mule yarns:—

Cones

10s	23
12s	23½
14s	24
16s	24½
18s	25
20s and 22s	25½-26
24s	26½

Southern frame yarn, lower grades:—

6s and 8s	19½
10s	20

Eastern cones (high grade quality):—

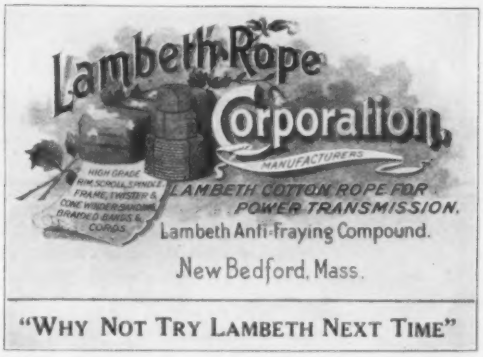
10s	23½
12s	24
14s	24½
16s	25¼
18s	25¾
20s and 22s	26¼-26¾

Skein yarn (mostly Southern):—

4s and 8s soft	19½
10s and 12s	20-20½
14s and 20s	21-22½
22s	23
10/2	20
16/2	21
20/2	22½
30/2	25½
40/2	30
8/2	20
7/6	20

Southern warps:—

10/1	20
14/1	21
16/1	21½
20/1	22
22/1	22½
26/1	23½
30/1	25½
8/2	21
12/2	21½
14/2	21½
16/2	22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TO NEW AND LARGER QUARTERS AT

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20/2	22½
26/2	24
30/2	25½
40/2	30
50/2	38

—÷—

THE LINEN YARN MARKET

Reports from Belfast have it that conditions remain about the same as in our last review of the market. Spinners still maintain their independence and are striving to uphold recent prices. In the fine end of weft yarns some spinners are even asking an advance, but buyers are by no means optimistic. The advance asked for has put an end to all negotiations for business, but it is almost certain that if a demand should develop there is apt to be an advance in prices. In the coarse yarns a satisfactory business has been done at listed prices. Yarns are held in fair stocks both by commission houses and spinners.

In the course of a few weeks the full reports regarding the flax crop will be in the hands of the spinners and this will influence prices one way or the other. The condition of the flax market at the present time is satisfactory and it is not thought that there is much chance of high prices, owing to the fact that spinners hold large stocks of last year's crop which has not been used up owing to the short schedule upon which mills have been running.

The demand for yarns in the American market has increased somewhat, especially in those yarns used by the hosiery trade, and some satisfactory contracts have recently been placed at market prices. An increased demand has also been felt for yarns suitable for the towel business. Satisfactory orders have also been placed, but at prices which are far from encouraging to the spinners.

("A" Quality)

35s Lea on cones	83
50s Lea on cones	88
60s Lea on cones	93
80s Lea on cones	98
90s Lea on cones	1.07
100s Lea on cones	1.10
110s Lea on cones	1.25
120s Lea on cones	1.45

—÷—

Georgia, Columbus. The Muscogee Mfg. Company is purchasing all the residential property on the west side of Broad St. between 14th and 15th Sts. and will use the site for a new spinning mill. It is reported a 25,000-spindle addition will be made but as yet no plans have been made.

Georgia, Lafayette. The work of installing 200 new 40-inch automatic looms in the Lafayette Cotton Mills is progressing. This new equipment takes the place of 200 old looms which have been thrown out.

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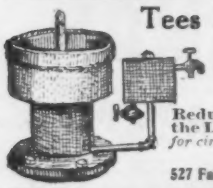
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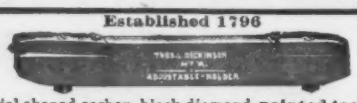
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COTTON MILL NEWS

*Connecticut, Versailles. Preliminary construction work has been started on the addition, 46 by 108 feet, to be built to the plant of the Totokett Mfg. Company, manufacturers of fine lawns, and the foundation is now about completed. The addition is to be completed August 1, and some new equipment will be installed, including cards, drawing and combing machinery. C. H. Frisbie is president; John T. Almy, treasurer; and C. W. Perkins, superintendent and buyer.

Georgia, Columbus. An addition 120 by 50 feet is to be built at the east end of the weave shed of the Meritas Mills. T. C. Thompson & Bros., of Charlotte, have the building contract.

*Georgia, Columbus. It is reported the work of electrifying all of the plant of the Eagle & Phenix Mills will be completed by August 15. A large amount has been expended by this concern in the past year for enlargements and improvements and at the annual meeting last February further improvements were discussed.

Georgia, West Point. The Lang Cotton Mills have completed the installation of 2,200 additional spindles, bringing the equipment up to 5,200 spindles.

Maryland, Savage. Next week construction work will be started on an addition to the plant of the Savage Mfg. Company, manufacturers of cotton duck and dryer felts. George V. Ward is superintendent and buyer.

*Massachusetts, Fisherville. New cards and roving machinery were received by the Fisher Mfg. Company during the week. Recently a new 4-story addition was built for the carding and spinning departments.

Massachusetts, Holyoke. In addition to building a new cloth department, recently reported, the Lyman Mills will construct a new building to be used as a stock room, to be 9 stories high, and to be located at the end of the new cloth department.

*Mississippi, Columbus. The new machinery recently purchased by the Tombigbee Cotton Mills to replace old equipment in the weaving department, at a cost of about $18,000, is being installed. This company manufactures cotton goods for sacking purposes on equipment of 8,064 ring spindles and 252 looms. It will not be necessary for the plant to close down while this improvement is being made.

North Carolina, Burlington. The E. M. Holt Plaid Mills, manufacturers of fine ginghams, are installing 50 new looms which will be equipped with individual motors.

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MANUFACTURERS OF
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Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.

North Carolina, Concord. A number of automatic looms will be installed by the Brown Mfg. Company replacing old looms. Earlier in the year several thousand new spindles were installed.

*North Carolina, Gastonia. The addition to the plant of the Flint Mfg. Company recently noted, will be 1 story high, 132 by 100 feet, with an ell 75 by 50 feet. This building will be equipped with 11,500 ring spindles and preparatory machinery which will practically double the capacity of the plant. 40s to 80s yarns in combed peeler, tubes, warps, skeins and cones are manufactured.

North Carolina, Statesville. An old dye vat in the plant of the Statesville Cotton Mills, manufacturers of colored cotton yarns and white cloth, has been replaced by a new dyeing machine.

*North Carolina, Worthville. The new yarn equipment recently purchased by the Riverside Mills, Inc., as previously noted, will give them 7,000 ring spindles and 248 looms for making sheetings, drills and bags. I. N. Cox is secretary and buyer.

Pennsylvania, Lancaster. Improvements are to be made at the Conestogo Steam Mills, John Farnum & Co., proprietors, and the contract has been awarded for the reconstruction of the present boiler house at a cost of $15,000. Five new 300 h. p. boilers are to be installed to take the place of a large number of small capacity boilers now in use. Clifton Evans is the architect and contractor.

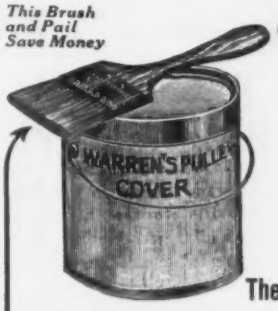
*Rhode Island, Pawtucket. It is expected the new addition to the weave shed of the Jenckes Spinning Company will be completed August 1 to 15. The new building will be 2 stories high, 260 feet long and 200 feet wide, with saw tooth roof, mill construction. Willmarth & Mackillop, Pawtucket, are the contractors. When the addition is completed the lower floor will be used for storage for raw materials and finished goods and the upper floor will be used for duck weaving, the present looms to be removed from the first story of the old weave shed to the second story of the new building and increased by the addition of about forty new looms.

*South Carolina, Goldville. Good progress is being made by the Shand Engineering Company of Columbia, S. C., in the construction of the addition, 144 feet long, to the plant of the Banna Mfg. Company. As noted in previous reports 4,096 spindles and 96 looms, for weaving 39-inch convertible goods are to be installed.

South Carolina, Lexington. One hundred looms and several spinning frames for warp yarns have been added to the equipment of the Lexington Mfg. Company, manufacturers of tickings. The capital stock was recently increased and a sprinkler system has been installed.

Mills Starting Up.

*Georgia, Elberton. J. C. Plonk, previously reported as purchasing the property of the Home Cotton Mills, has organized a new company and applied for a charter under the corporate name of the Elberton Mfg. Company.



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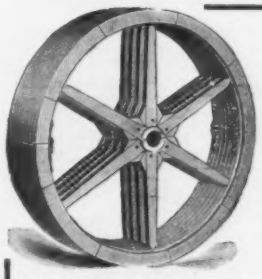

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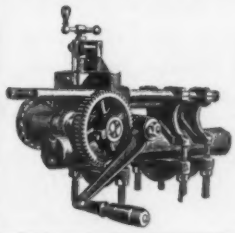

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STANDARD SPINNING COMPANY

FRISBIE AND STANSFIELD KNITTING CO.

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OSWEGO, N.Y. Jan. 22nd, 1913.

Dodge Manufacturing Co.,
Mishawaka, Indiana.

Gentlemen:

We operate a cotton yarn mill, 17,000 spindles. The plant is originally and essentially a water power proposition, drawing from the hydraulic canal on the west side of the Oswego river. At each end of the mill is a pair of horizontal water wheels, each of which drives direct to a main shaft on the first floor of the mill Above the basement, the two sets of water wheels being connected by this main shaft. At the south end of the mill is an auxillary steam plant, the power of the engine being transmitted by a 700 H.P. Dodge rope drive. A Dodge clutch coupling connects this drive with the shaft of the south water wheels. From this same shaft another 700 H.P.Dodge rope drive (our first) installed August 6,1907, connects with the main shaft on the first floor, as referred to.

We consider this arrangement well adapted to exigencies and the varying conditions of our source of power. By means of Dodge jaw clutches, either or both sets of water wheels can be disconnected; and the engine also, when not required, can be thrown out by the same clever device. We should here remark that we are well satisfied with our two 700 H.P.Dodge rope drives.

The latest Dodge drive, installed with our engine during the past year, runs in a concrete pit, which is liable to serious leakage during high water, the results of which would be ruinous to a belt.

Further the long periods which our auxiliary steam power plant is apt to be idle, makes a rope drive much more desirable, as a belt would require much care to protect it from dampness and liability to injury. And too, the short distance between centres of this drive and the intricacies of the situation in general, give us much better results from the rope than we could get from a belt. Incidentally the idler on this latest drive is of such dimensions as to make it suitable for driving direct from the engine to the main line shaft on first floor above the basement, should this change at any time become desirable.

Referring to the first 700 H.P. Dodge drive, this has now given us most excellent service for over five years. Not only do we consider the rope drive in this place to be more economical, both for care and efficiency, but the driving sheave runs in a pit which also is liable to be flooded in extreme high water in the river.

Besides the two 700 H.P.drives, we have for a number of years had in operation in our plant 250 H.P., 75 H.P., and 50 H.P.Dodge drives, all giving excellent service. The last two drives mentioned run out doors and are constantly exposed to all kinds of weather, which does not effect them the slightest.

We are glad to give this unsolicited testimony to our pleasant experience with Dodge goods as devised for our requirements. Dodge engineers have certainly solved our transmission problems for us with uniformly satisfactory results.

Yours truly,
STANDARD SPINNING CO.
J. Merriman
Mgr.

Estimates on Complete Transmission Equipments for Textile Mills Cheerfully Furnished Free of Obligation

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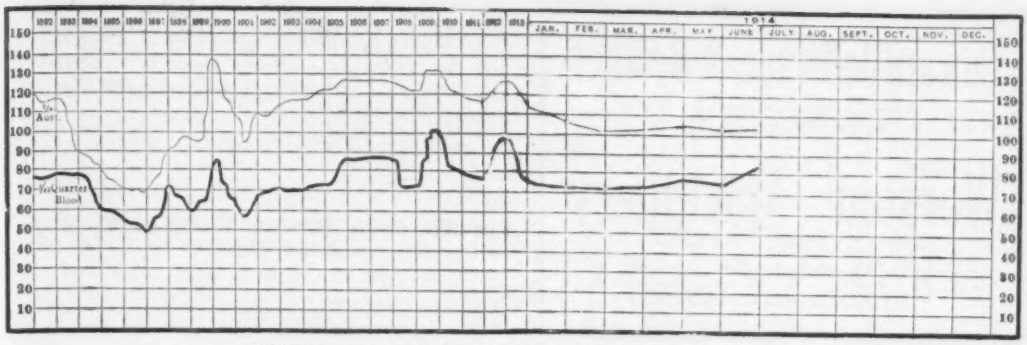
CHICAGO 214 S. Clinton St.	NEW YORK 21 Murray St.	MINNEAPOLIS 100 N. Third St.	ST. LOUIS 408 N. Fourth St.	PORTLAND, ORE. 14th and Lovejoy Sts.	DALLAS, TEX. Burch Bldg.
		INDIANAPOLIS	Merchants Bank Building		



GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

WOOLEN AND WORSTED YARN MARKETS

Spinners of worsted yarns report business as quiet, orders being hard to get on account of the recent advance in prices due to the continuous advancing of raw material, although prices are still in favor of the buyer. The sweater business is extremely dull and manufacturers of this class of fabrics state that business today is far more quiet than during the panic of 1907. Some portions of the weaving trade are fairly supplied with orders, although they report that the openings of the light weight season in men's wear will be late. The underwear business is in pretty good shape and a great many contracts for yarns which were placed by this branch of the trade during the past fall ran out the first of July. This has naturally made it necessary for them to place new contracts for yarns, some of which are said to be pretty large. Since our last report prices have been advanced about three cents per pound. Even this advance, the spinner claims, is not sufficient to meet the rise in the wool market when one takes into consideration the prices asked by the wool dealers here and in the West. Wools for the coming season have all been contracted for in the West and if there is any increased demand for yarns due to a brightening up of business conditions in all lines of the weaving as well as the knitting trades, there will be a further advance in the price of yarns as almost all spinners at this time claim to be working on an extremely close margin of profit, some working even at cost in order to keep their organization together. There seems to be a haphazard sort of inquiry for yarns, but buyers are hard to interest at the prices quoted today.

A considerable business in foreign yarns is reported as having been done with American mills, although manufacturers in all lines claim that they would prefer to place their orders with domestic spinners even though they are compelled to pay from five to ten cents per pound more, rather than put up with the inconveniences due to the delay in delivery and many other details.

The outlook for business at this writing seems uncertain as no one is willing to speculate as to what will be the result of present conditions.

BRADFORD SPUN YARN

2/16 Ingrain (black)	57
2/16 Ingrain (light grey)	58
2/16 Ingrain (white)	59
2/12 to 2/16 low common	62½-65
2/20 to 2/24 low 1/4	65-67½
2/20 to 2/25 1/4 blood	70-72½
2/26 to 2/28 1/4 blood	72½-75
2/32 1/4 blood	75-77½
2/20 3/8 blood	77½-80
2/26 3/8 blood	82-84
2/32 3/8 blood	84-86
2/36 3/8 blood	85-87½
2/40 1/2 blood	95-97½
2/40 delaine	1.00-1.02½
2/50 delaine	1.05-1.07½
2/40 Australian	1.02½-1.05
2/50 Australian	1.12½
2/60 Australian	1.17½-1.20
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½

KNITTING YARNS

Dyed and Bleached—Bradford System

2/7s straight 1/4 blood	78-80½
2 and 3 ply 10s-15s straight 1/4 blood	80½-83
2 and 3 ply 16s-20s straight 1/4 blood	80½-83
2 and 3 ply 20s-24s straight 1/4 blood	83-85½
2 and 3 ply 24-28s straight 1/4 blood	85½-88

FRENCH SPUN YARN

1/20 1/4 blood	75-77
1/20 high 1/4	78-80
1/20 3/8	80½-83
1/20 high 3/8	83-85½
1/20 1/2 blood	85½-88
1/30 1/2 blood	88-90½
1/40 1/2 blood	93-95½
1/50 delaine	1.00-1.02½

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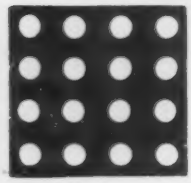
Woolen Yarns
FOR WEAVING AND KNITTING



Perforated Plates for Wool Washing

Rinsing and Carbonizing

In Special Metal

BECKLEY PERFORATING CO.,
Garwood, N. J.

1/40 Australian 95-97½
1/50 Australian 1.02½-1.05
1/60 Australian 1.10-1.15
1/70 Australian 1.18-1.23

For two ply knitting twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

—÷—

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop 70
1/30 50/50 White Merino Cop 72
1/40 50/50 White Merino Cop 74
1/20 60/40 White Merino Cop 74
1/30 60/40 White Merino Cop 76
1/40 60/40 White Merino Cop 78
1/20 70/30 White Merino Cop 79
1/30 70/30 White Merino Cop 81
1/40 70/30 White Merino Cop 83
1/20 80/20 White Merino Cop 83
1/30 80/20 White Merino Cop 85
1/40 80/20 White Merino Cop 87
Sliver and Sanitary Mixes ..... 3c. more
Coning on 1/20 ..... 2c. more
Coning on 1/30 ..... 3c. more
Coning on 1/40 ..... 4c. more

—÷—

WOOLEN AND MERINO YARNS

Spinners of woolen and merino yarns report conditions as not up to expectations at this time although they are doing a little more than they have done during previous months. The yarns turned out are on specifications already received and as most of their contracts expire around July 1 and the buyers are taking advantage of the lower priced contracts and asking for deliveries during the months of August, September and October. There is very little, if any, new business coming in. The prospects for the future look somewhat brighter even though the anticipated change in conditions did not turn out as expected. Prices have a tendency to go higher, although our quotations for July remain about the same as last month.

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	52-55
2/20 Light Grey Mixed	90%	10%	57½-60
2/20 Light Grey All Wool			62½
2/20 Colored All Wool			60-62½
2/20 Bleached	80%	20%	65
2/20 Bleached	90%	10%	67½
2/20 Bleached All Wool			72½
2/23 Colored All Wool			62½-65
2/23 Bleached 90/10			67½-70
2/23 Bleached All Wool			72½-75
2/25 Light Grey Mixed All Wool			80-82½
2/25 Bleached All Wool			85-87½

THE RAG AND SHODDY MARKET

The trade in wool substitutes is unusually quiet. Prices have declined to some extent. Users of rags and shoddy have bought only in small quantities for immediate requirements and have shown no interest in buying on speculations even at marked reductions in the current quotations. The shoddy mills are working on duplicate orders from manufacturers who have found it necessary to replenish stocks in order to complete their heavy weight orders. Wool waste is dull with very little demand and no large stocks on hand. Cotton waste shares the general depression with orders scattered and for small amounts.

SHODDIES AND EXTRACTS

White yarn, best all wool	46-49
White knit, all wool, best fine	30-40
White, knit, No. 2	23-30
Light yarn, extra fine	35-36
New pure indigo blue	24-27
Merino	
Fine light, all wool	20-22
Medium light, all wool	19
Fine black, all wool	17-19
Fine dark, all wool, best grade	18-20
Medium dark, all wool. No. 2	13-15
Red knit stock, strictly all wool	20-24
Red flannel, all wool	19-22
Dark Blue for hosiery, strictly all wool. No. 1	20-22
Dark blue for hosiery, not all wool. No. 2	12½-14½

NEW WOOLEN RAGS

Fine merchant tailors	5½-7½
Choice light colors	7-8
Browns	12
Blacks	6
Blues	9
Fine dark	7-12
Medium dark	4-5
Serges	
Black	10
Blue	10-11
Flannels	
Very light	17-18
Mixed	10-11
Black	6-7

SOFTS AND KNIT STOCK

Soft woolens, best	5-6
Old white flannels	11-14
Old red flannels	10-11
Old blue flannels	3-5½
Old plaids	3½
White stockings	20-24½
Clear dark hoods	7-8
Light hood stock	13-14

North Carolina, Statesville. The Bloomfield Mfg. Company has installed a small amount of new machinery for working up card and comber waste into 3 to 12s single and ply yarns.

Interruption of Production

is recognized by textile mill operators as the most costly element of repairs.

Allis-Chalmers TEXTILE MOTORS

are so liberally designed and so sturdily constructed that they will operate for years without need of repairs providing they are properly supplied with oil while in service.

"Motors for all drives"

Allis-Chalmers Manufacturing Company

Power and Electrical Equipments

Milwaukee - Wisconsin

For all Canadian business refer to Canadian Allis-Chalmers, Limited, Toronto, Ont.

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Woolen and Merino YARNS

Eaton Rapids Woolen Mills

EATON RAPIDS, MICHIGAN

OTTO KUNZE

30 Church St., Room 501, New York City

Our Specialty: Fibre Covered Shuttles Of Every Description

Samples sent on application

You Get the Same Yarns that Cheney Silks are Made of

When you buy Cheney Silk Yarns, you get yarns of the identical quality that we ourselves use in making Cheney Silks, the leadership of which is unquestioned.

Cheney Silk Yarns

put you in a position to obtain the same perfection and popularity for *your* product that *we* have secured for Cheney Silks by the use of the *same yarns.*
Furnished in the gray or dyed; organzines and trams; doubles and singles; on spools, cones, warped or in the hank. Individual specifications solicited. Samples and quotations on request.

CHENEY SILKS

are of superior quality, and include practically every kind of goods made of silk—whether for dresses, millinery, decoration or upholstery, the haberdasher or manufacturer, man or woman.

CHENEY BROTHERS, *Silk Manufacturers,* 4th Ave. and 18th St., New York

National Silk Dyeing Co.

Main Office, PATERSON, NEW JERSEY, 140 Market Street

NEW YORK SALESROOM, 60 UNIVERSITY PLACE

Skein Silk Dyeing of every description for every class of textile manufacture.

Hosiery Dye—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

Piece Dyeing and Finishing—All silk and silk mixed goods.

Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

The silk market is firm with no perceptible advance in prices. There is practically no activity in the market. This is owing to the fact that there is but little raw silk to be had, all of the third crop having been disposed of. It will be at least two months before the fourth crop of new silk will arrive.

In Japan it is reported that the new silk arriving is not sufficient to supply the demands of the European and American markets. The prices being higher, the manufacturers are playing a waiting game and are not contracting for much silk. Very little business is being done. Cocoons are selling at quite an advance, which has a tendency to advance the price of the raw product.

Canton has suffered from a severe flood, this being their rainy season. It is predicted that the fourth crop of silk on this account will be very small and is likely to cause a shortage for the next two or three months. In China the crop of steam filatures are about the same as last year, while tsatlee's are much behind the record for the same period. In Milan the market is reported very quiet, and very little business transacted. Very little new silk is to be had, while cocoons are bringing high prices.

In Lyons, France, and the silk districts thereabouts manufacturers are reported as fairly busy, but are hampered somewhat by the shortage of the raw product. Last year there was produced about 200,000 bales of silk. Adding 20,000 bales from 1912, this would make a total of 220,000 bales for the season. About 70 per cent. of this amount was shipped to the United States. Whether this record will be repeated this year or not remains to be seen.

The silk manufacturers in this country are only fairly busy. This is owing to the fact that the mills are out of the raw product and are waiting for lower prices. It is said in many quarters that prices are quite likely to advance rather than recede, as there is very little silk to be had and orders are being taken on at least a two months' basis.

Cotton knitting manufacturers, although carrying depleted stocks of raw silk, are not found in the market to any great extent, preferring to wait for the new crop.

In the dry goods district the silk departments in the retail stores report a very dull business for the past month, especially in broad silks. This may be accounted for in part by the effect of the general depression in many lines. Crepe dechine remains still very popular, while velvets, black and white stripes, poplins and wool back satins look good for fall.

The ribbon manufacturers are still quietly busy. Many manufacturers of black and white and fancy striped ribbons report a good season. It is also

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DYED SILK FOR ALL PURPOSES
Philadelphia Office:
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KROUT & FITE MANUFACTURING CO.,
MANUFACTURERS OF
Silk, Cotton and Mercerized Narrow Fabrics
SPOOL TAPES A SPECIALTY
TELEPHONE CONNECTION
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Spun Silk Yarns

For All Purposes

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500 Driggs Avenue

Brooklyn, N. Y.

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ORGANZINE, TRAM AND HOSIERY SILKS

Fast Dye Organzines for Woolen Manufacturers a Specialty

Mills: Bethlehem, Pa., Philadelphia, Pa., Scranton, Pa. New York Representative, Wm. Ryle & Co., 225 Fourth Ave.
Philadelphia Office, 4015 Clarissa St., Nicetown

Chicago Office, 206 So. Market St. Boston Office, 78 Chauncey St.

SILK CITY WARPING CO.

No. 167 Ward Street, Paterson, N. J.

ADDRESS ALL CORRESPONDENCE TO NEW YORK OFFICE,
CARE E. GERLI & CO., 119 E. 27th STREET

All Frames Equipped with Latest Improvements, Particularly W. & R. Oscillating Reed Motion,
The Latter Assuring Complete Relief to Strain on Silk

GOODS FULLY INSURED BY FIRE. PROMPT SERVICE GUARANTEED.

Raw Silk Warping a Specialty.

WILLIAM RYLE & CO.,

FOREIGN AND DOMESTIC

SPUN SILK YARNS and NOILS

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

225 Fourth Ave., Corner 18th St., NEW YORK CITY

said that black velvet ribbons will be worn much in the fall.

It is too early to predict just how much of a volume of business the silk industry will have the coming fall, but all are looking forward to their being a good demand for the finished product. Below are prices current:

European

Grand Extra Classical Piedmont 12/14	5.05-5.10
Extra Classical Italian 12/14 12/16	4.70-4.75
Classical Italian 13/15 24/26	4.50-4.55
Best No. 1 Italian 13/15 24/26	4.45-4.47½

60 days' basis

Japan

Filature Kansai Extra Extra	4.60-4.70
Filature Kansai Extra 13/15	4.45-4.50
Filature Shinshu Extra 13/15	4.40-4.45
Filature Kansai Best No. 1 13/15	4.35-4.40
Filature Kansai No. 1 13/15	4.15-4.20
Filature Shinshu 13/15	4.15-4.25
Rereels No. 1 13/16	Nominal
Rereels No. 1½ 13/16	Nominal
Rereels No. 1½-2	Nominal

6 months' basis

China

Canton XXA 14/16 (New Silk)	3.40-3.50
Canton XXB 14/16	3.30-3.35
Tsatlee Blue Dragon Flying Horse	3.30-3.35
Tsatlee Kun Kee Mars No. 1	2.80-2.85
Tussah Filature 8 Cocoons No. 1-2	1.40-1.45

6 months' basis

SPUN SILK

Manufacturers of this product are still busy, but while the month of May was not up to last year's business record, it is thought that June will exceed last year's figures in this industry. The coming season looks very favorable for the spun silk manufacturers and they are making preparations along these lines. Below are prices current which remain the same:

60/2	3.80
50/2	3.70
40/2	3.60
30/2	3.45
20/2	3.35
10/2	3.25

ARTIFICIAL SILK

The artificial trade is still rather inactive, although manufacturers report a better demand for their product just at the present time. It is expected that much artificial silk will be used the

A. P. Villa & Bros.

Raw, Thrown and Dyed Silks

Silk on Quills or Beams. Hosiery Silk on Cones

Societa per la Filatura dei Cascami di Seta, Milan (Italy)
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"Cascami"

Schappe, Spun Silk, Cordonnets for Sewing in Skeins—on Cops—Spools —Cones—Beams.
In Gray or Dyed.
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Our Specialty:
DYED SILK FOR THE KNITTING TRADE
on cones and tubes

RAW and THROWN SILK, ARTIFICIAL SILK

Mercerized and Cotton Yarns, Yarns and Threads

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122 EAST 25th STREET, - NEW YORK
Costs Calculated, Advice Given on Mill Matters, Damaged Goods, and on Textile Questions of every kind
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"Silk Manufacturing and Its Problems"
580 pages 9x6, price $2.80 delivered
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Tram, Thrown Silk, Organzine, Artificial Silk
Domestic and Imported, Plain, Gassed and Mercerized. Polished and Glazed Cotton, Mohair, Worsted and Tinsel.
Best Quality Harness Twine
107-109 Greene St., New York
Silk Throwing Mills, BEACON and YONKERS, N.Y.
YARNS

SILK MILL SUPPLIES
OF EVERY KIND AND DESCRIPTION
Also Power Transmission Supplies for General Mill Use
I. A. HALL & CO.
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Alexander Smith & Son
Warping and Winding on Commission
Work Done on Frames with Swiss Motion
All Goods Fully Insured
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Cotton, Wool and Silk Conditioning
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NEW YORK
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SAVOGRAN
Cleans Wool, Floors, Anything
INDIA ALKALI WORKS, - BOSTON

F. ROLKER
23 East Twenty-Sixth Street, New York
Importer and Dealer in all kinds of
RAW SILK
In the Skein or on the Beam. Tel. Mad. Sq. 8868

coming fall and those in the trade are quite optimistic as to the future. Prices are quoted below:

150 Deniers First Quality European	1.90
150 Deniers Second Quality European	1.80
150 Deniers English A.—Bleached	1.90
150 Deniers English B.—Bleached	1.80
150 Deniers English C.—Bleached	1.70
150 Deniers Elberfeld Raw	1.72
150 Deniers Chardonette Natural	1.85

SILK MILL NEWS

New Mills.

New Jersey, Paterson. The Silk City Silk Company is the name of a new broad silk concern just started in the Ward Street Mills.

New Jersey, Paterson. A partnership has been formed between Morris Aronsohn, 583 Broadway, and Samuel Aronsohn, of 45 Bridge St., for the manufacture of silk fabrics. A plant will be opened shortly on Fifth Ave., near the Weidmann Silk Dyeing Company's plant and the new concern will be known as the M. & S. Silk Company.

*Pennsylvania, Avoca. Ground has been broken for the erection of the new silk throwing mill in which John Ramsey, formerly superintendent of the Shamokin plant of J. H. and C. K. Eagle, is interested. The site is near the South Avoca Laurel Line Station. William Weir has the contract and it is expected the building will be completed within two months. It will be a 1-story and basement wooden structure, 50 by 120 feet.

Pennsylvania, Scranton. William Kelly, vice-president of the Pennsylvania Central Brewing Company, has organized a new concern to be known as the Kelly Silk Company and a plant will be established at 16 Lackawanna Ave. According to an announcement made manufacturing will be started within thirty days with fifty or more hands.

Pennsylvania, West Pittston. The Nino Throwing Co., of Hawley, has established a branch plant here in the Warren Street Armory Bldg., which it has leased for a number of years. Twenty-five hands are employed at present but it is expected that when the mill is running to full capacity 150 hands will be employed. A number of improvements will be made.

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Enlargements and Improvements.

Connecticut, South Manchester. In addition to the extensive new construction work that Cheney Bros. are now engaged in, it is reported they are considering the erection of a large electric power plant to furnish power for the mills which are operated by electricity and to supply the South Manchester Light, Power & Tramway Company, which furnishes the town with electricity. It is said to be improbable, however, that anything will be done toward the construction of the electric power plant this year. The new mills in course of construction are to be operated by electricity.

New Jersey, Paterson. The Belmont Silk Company has purchased 16 broad silk looms from the Mohilev Silk Company and has placed this additional equipment in the plant in the Todd Mill.

SILK MILL NEWS

New Jersey, Paterson. Margolin & Baten, now located in the Gun Mill, have leased space in the Bell Mill on 5th Ave., and after occupying it will install six more broad silk looms.

*New Jersey, Paterson. The Irving Silk Company will move from the Harding Mill into the new quarters recently leased at 204 Van Houten St. on June 15. As noted previously the equipment is to be increased by the addition of 20 looms for weaving cotton back satins, messalines and similar goods.

New Jersey, Paterson. Twenty new looms are being installed in the plant of the Staple Silk Company, manufacturers of broad silks.

New Jersey, Paterson. An old building at 56-58 Garfield Ave. is being torn down to make room for the erection of a modern 3-story brick silk mill for the Neuviller Silk Company, Inc. The addition, when completed, will represent an investment of about $20,000. The Neuviller Silk Company, Inc., at present occupies the old mill at 54 Garfield Ave., adjoining the site of the proposed new plant, and because of the need of more space bought the property adjoining. Plans are being drawn for a modern mill. It is planned to rush the work of construction that the new mill can be completed before fall if possible. The Neuviller Silk Co., Inc., is capitalized at $50,000 and does a business of commission silk throwing. C. V. Neuviller is president, and L. Neuviller, treasurer.

New York, Amsterdam. Plans for a large addition to the Fownes Silk Mills on Grove St. have been prepared for Fownes Bros. & Co., and call for a two-story brick addition on top of the present basement structure, the dimensions being 90 by 80 feet. The contract has been awarded for the operation and it will be started at once. Silk gloves are manufactured, dyed and finished.

*New York, Gloversville. Good progress is being made on the new 3-story mill on Washington St. for the Normandie Silk Mills, Inc., and it is expected the new brick building will be ready for machinery in about six weeks. As noted in previous reports the building will be 40 feet wide and 75 feet long, and will be constructed so that enlargements can be made as the further growth of the business warrants. A boiler of 80 h. p. will be installed for steam in the dye house and for the heating plant. This is a new concern established only a few months ago for the manufacture of jersey silk cloth for gloves and underwear under the management of L. E. Winnie, who has had a number of years' experience in manufacturing this class of goods.

*New York, Watertown. Forty-eight new looms are to be installed at once in the plant of the Toohey Silk Mills, Inc., replacing old equipment, and the first installment of this new machinery arrived this week. The concern will manufacture coat linings exclusively and the production of broad silks will be discontinued as soon as orders on hand are completed. A further increase is contemplated but will not be carried out at present.

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Krams Ave., formerly Church St., Manayunk, Phila., Pa.
Textile Machinery
Makers of Rag, Wool, Hair and Finishing Pickers, Automatic Square and Cone Willows, "Schofield" Intermediate Feed for Cards, Rag and Extract Dusters, Waste Pullers, Worsted and Shoddy Reels, All Kinds of Spike and Slat Aprons.
Special Machinery Built. General Machinery Repairs.
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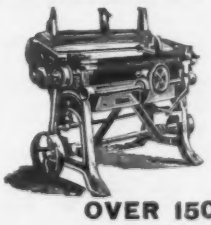
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Ensures:
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Made by the same Dronsfield as the world-famed Traverse & Long-Roll Grinders.
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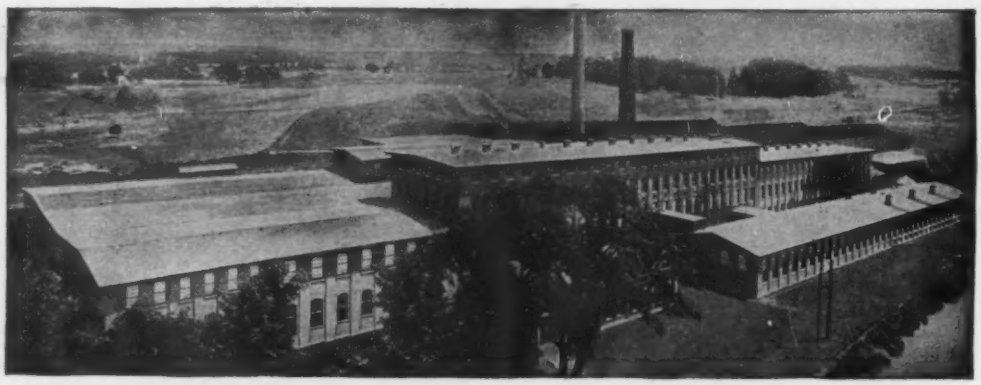

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Sheetings, Shirtings, Lawns, India Linons.
Everything in White Goods.
Capacity, 30 Tons Daily

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IT BOILS THIN. PENETRATES THE WARPS. INCREASES BREAKING STRENGTH. THE STANDARD SIZING AND FINISHING STARCH FOR TWELVE YEARS. A TRIAL WILL CONVINCE YOU.

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Elbridge G. Snow, President

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Cash Capital, $6,000,000

ASSETS, January 1, 1914	**$33,139,915.81**
LIABILITIES (Except Capital)	**17,066,896.12**
SURPLUS AS REGARDS POLICY HOLDERS	**17,873,019.69**
Losses Paid Since Organization over	**145,000,000.00**

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Protected Plants
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IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

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DYESTUFFS AND CHEMICALS

Acetic, 100 lbs.	2.16-2.56
Citric, domestic	38
Copperas	65-80
Oxalic	7-8½
Sulphuric, 66°, 100 lbs.	1.00-1.25
Muriatic, 18°	1.15 1.65
Tartaric crystals	30-33

Miscellaneous Chemicals and Dyestuffs

Acetate of lime, gray, 100 lbs.	2.50-2.60
Alum, lump	1.75-1.90
ground	1.85-2.00
powdered	3.00-3.15
Aqua ammonia, 26°	2-5
Borax	3-5
Cream tartar, crystals	23-25
Fuller's earth, powdered, ton	17-20
Glauber's salt	75-85
Potash, chlorate, crystals	8-9
powdered	9-14
carbonate	3-6
Soda, bicarbonate	1.15-1.50
Soda, caustic, domestic, 60 per cent.	1.80-1.91
Sal., American	65½-85
Vitriol, Blue	4.76-5.00
Acetate of soda	4-6
Acid, picric, best crystals	70-75
tannic, commercial	36-37
Albumen, egg	42-65
blood	20
Aniline, oil	9
salt crystals	8½-9½
Alizarine	15-16
Bichromate of potash, American	7-8
Bichromate of soda	4½-7½
Bisulphite of soda	75-1.25
Cutch, bales	5-8
Dextrine, imported potato	4-7
Divi-divi, ton	33-47

FIRES.

Connecticut, Bridgeport. A defective chimney caused a fire on the roof of one of the buildings of the Salt's Textile Mfg. Company. Prompt work prevented the spread of the blaze and the damage is very small.

Georgia, Dublin. The plant of the Oconee River Mills has been destroyed by fire with loss estimated at $200,000. The insurance is $133,000. It has not yet been announced whether the company will rebuild. The mill has been shut down for several weeks and the water works system of the plant was out of order. The Oconee River Mills manufactured cotton goods and had equipment of 18,000 spindles and 225 looms.

Georgia, Eatonton. Damage estimated at $1,000 was caused by fire in the engine room of the Putnam Mills & Power Company. The damage will be repaired immediately.

Indiana, La Porte. Fire in the drying department of the Wallace & Smith Blanket Mills damaged a new wool stock dryer, causing loss estimated at about $500.

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99% Efficiency

Efficiency, reliability, economy—no matter which point seems most important to you, Morse Silent Chains excel, and should be your choice for Twisters, Winders, Warpers and all other Textile Machines.

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Boston, Mass.

SILK MILL NEWS

*New York, Port Jervis. Work will soon be started on the new silk mill to be built here by Kattermann & Mitchell Co. Previous reports of this project have been given.

Pennsylvania, Allentown. Six more looms are being set up in the plant of the State Silk Company, manufacturers of broad silks, giving total equipment of 86 broad silk looms.

*Pennsylvania, Allentown. Work has been started on the new building for Keltenbach & Stephens which will be of the same design as the concern's present buildings. The new structure will be completed in August and 200 more high speed ribbon looms will be installed, making 700 looms in all.

*Pennsylvania, Doylestown. Arrangements have been completed for the erection of the proposed new silk mill by H. Alder and M. D. Alder, of New York, John Schwartz, Jr., of Philadelphia, and Bitzer Bros. The new building will adjoin the Bitzer Bros. Silk Mill and will be 50 by 190 feet. On its completion the looms now in the plant of Bitzer Bros. Silk Mill will be moved into the new space and the equipment increased to 35 looms for weaving ribbons. The space in the old mill vacated by the removal of this machinery will be occupied by the Royal Silk Company, manufacturers of broad silks, who are planning to add a number of looms to their equipment.

Pennsylvania, Easton. Contract has been awarded to Anthony A. Bechtel, by the Easton Silk Company for a new dye house and finishing plant, and construction work will be started shortly. The new building will be located south of the company's main building and will be one story high, 50 by 185 feet, of brick and concrete construction. About fifty additional hands will be given employment in this new department. At present all the dyeing for the company is done at out-of-town plants. The Easton Silk Company manufactures plain and fancy broad silks on equipment of 400 broad looms and completed an enlargement last December. William R. Haytock is president and treasurer; C. Cronemeyer, agent; and John Haytock, superintendent.

*Pennsylvania, Hazleton. Construction work has been started on a new brick addition, 90 by 198 feet, one story and basement, to the local plant of the Duplan Silk Company and on its completion about October 1, 300 looms and preparatory machinery will be installed on the main floor, giving employment to 150 more hands. The basement will be used for storage. The new equipment is to increase the output of piece dyed silk and silk mixed goods and will give total equipment here of 1,300 broad looms.

Dobbins Soap Mfg. Co.

PHILADELPHIA

Makers of Soaps Especially Adapted for All Kinds of Textile Mfrs. Use. Send for Sample.

SILK MILL NEWS

Pennsylvania, Kingston. Work has been started on the foundation for a new mill for Crane Bros., Inc., silk throwsters.

*Pennsylvania, Lancaster. The addition being built to the plant of Follmer, Clogg & Company, manufacturers of umbrella and parasol silks, which was recently noted, is expected to be completed within a week. Sixty additional looms, warping and winding equipment will be installed.

Pennsylvania, Philadelphia. It is expected that a number of extra wide looms will be added to the equipment of the Pine Tree Silk Mills Company at an early date. This concern's plant is at Allegheny Ave. and Boudinot St. The office is at 808 Arch St., Philadelphia.

Pennsylvania, Portage. Plans have been made for an enlargement which will more than double the output of the local mill of E. & H. Levy and ground will probably be broken early this month. It is reported a 2-story addition, 52 by 150 feet, will be built and that at least 100 more operatives will be given employment. The present mill is 50 by 130 feet, 2 stories high, and employs 85 hands making silk ribbons. The main plant and office is in New York City.

.....

Mills Starting Up.

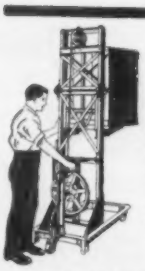
*New York, Olean. Dunlop Bros., of Spring Valley, N. Y., have completed arrangements for the purchase of the local plant of the Feder Silk Throwing Company. Plans are under consideration for enlargements but nothing has been decided upon as yet. Land adjoining the property of the Feder Silk Throwing Company has also been purchased. The capacity of the Spring Valley plant of Dunlop Bros. has been doubled and it is running on a day and night schedule. The local plant was closed several months ago and was started up in April, under a lease with the option of purchase should conditions prove satisfactory, by Dunlop Bros.

MISCELLANEOUS.

.....

Canada, Ontario, Guelph. Ferguson & Swanson, investment bankers and brokers with offices in the Continental Life Bldg., Toronto, are the purchasers of the buildings, real estate and equipment of the Dominion Linen Mfg. Company. It is their intention to organize the assets of the insolvent company in a new organization which they state will probably include the Oxford Linen Mills at Tillsonburgh, now idle. No one has been chosen as yet as manager of the new company but in the meantime the plant in Guelph is being operated under the direction of the firm.

*New Jersey, Paterson. The addition, 50 by 72 feet, being built to the plant of the Wiedman Silk Dyeing Company is to enlarge the chemical works.



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Approved by the National Board of Fire Underwriters and accepted by all Insurance Companies
The Perfection of Watchman's Detector Service
Simple, Efficient, Tamper-proof, Durable
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CRYSTAL SPECK DYE
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They know further that its cost is less than that of any other permanent roofing and than its maintenance cost is nothing, making a net cost per foot per year of service of about ¼ of a cent.

A copy of The Barrett Specification will be sent, on request, to any architect, engineer or property owner. It formulates a precise and practical way of laying these roofs to secure the best results at the least expense. Address our nearest office.

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THE PATERSON MFG CO., LTD.

Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

MILL STOCKS

FALL RIVER MILLS

	Bid.	Asked.	Last Sale.
American Linen Co.	...	70	...
Arkwright Mills	...	62	...
Barnard Mfg. Co.	...	55	...
Bourne Mills	...	110	...
Border City Mfg. Co.	...	99	...
Chace Mills	98	...	...
Charlton Mills	83	...	...
Cornell Mills	...	...	...
Davol Mills	...	90	...
Davis Mills	85	...	87
Flint Mills	...	100	...
Granite Mills	...	...	...
Hargrave Mills	...	50	...
King Philip Mills	...	106	...
Laurel Lake Mills	...	116	...
Lincoln Mfg. Co.	...	...	...
Luther Mfg. Co.	...	126	...
Merchants' Mfg. Co.	...	82	...
Mechanics' Mills	...	85	...
Narragansett Mills	...	102	98
Osborn Mills	...	100	...
Parker Mills	...	45	...
Pocasset Mfg. Co.	...	101	...
R. Borden Mfg. Co.	118	...	120
Sagamore Mfg. Co.	170	...	...
Seaconnet Mills	...	60	...
Shove Mills	70	...	...
Stafford Mills	...	...	...
Stevens Mfg. Co.	125	127	125
Tecumseh Mills	...	105	...
Troy C. & W. Mfg.	...	...	...
Union Cot. Mfg. Co.	...	...	...
Wampanoag Mills	...	82	...
Weetamoe Mills	...	87	...

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	137½	...
Beacon Mfg. Co., com.	102	...
Beacon Mfg. Co., pfd.	...	115
Booth Mfg. Co., com.	...	21
Booth Mfg. Co., pfd.	47½	52½
Bristol Mfg. Co.	...	67½
Butler Mill, com.	...	90
Butler Mill, pfd.	...	100
City Mfg. Co.	90	...
Dartmouth Mfg., com.	...	135
Dartmouth Mfg., pfd.	...	102½
Gosnold Mfg. Co., pfd.	...	89
Grinnell Mfg. Co.	...	180
Holmes Mfg. Co., com.	100	...
Holmes Mfg. Co., pfd.	105	...
Kilburn	110	...
Manomet	...	114½
Nashawena Mills	...	69½
N. B. Cotton Mills, com.	100	...
N. B. Cotton Mills, pfd.	96	100
Nield Mfg. Co.	...	95
Nonquitt Spinning Co.	...	94
Page Mfg. Co.	...	80
Pierce Mfg. Co.	295	300
Pierce Bros., Ltd.	100	...
Potomska Mills	...	120
Quissett Mills, com.	...	98½
Quissett Mills, pfd.	97½	*100
Sharp Mfg. Co., com.	...	85
Sharp Mfg. Co., pfd.	...	100
Soule Mills	...	79
Taber Mills	...	100
Wamsutta Mills	115	...
Whitman Mills	...	123

* Ex dividend.

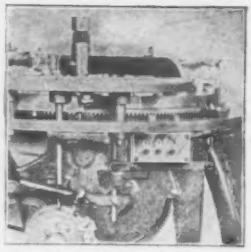
OTHER NEW ENGLAND MILLS

	Par Value.	Last Sale.
Amoskeag Mfg. Co., com., N. H.	100	60½
Amoskeag Mfg. Co., pfd., N. H.	100	100½
Androscoggin Mills, Me.	100	137
Arlington Mills, Mass.	100	80
Appleton Co., Mass.	100	172
Bates Carpet Co., Me.	100	215
Bigelow Carpet Co., Me.	100	213
Boott Mills	100	98⅛
Boston Duck Co., Mass.	700	1280
Boston Mfg. Co., Mass.	100	85
Cabot Mfg. Co., Me.	100	100
Chicopee Mfg. Co., Mass.	100	90
Continental Mills, Me.	100	75¼
Dwight Mfg. Co., Me.	100	1021¼
Edwards Mfg. Co.	100	99
Essex Co., Mass.	100	186½
Everett Mills, Mass.	100	113¾
Fisher Mfg. Co., Mass.	100	125⅛
Franklin Co., Me.	100	201¼
Great Falls Mfg. Co., N. H.	100	168
Hamilton Woolen Co., Mass.	100	95
Hamilton Mfg. Co., Mass.	100	83
Hill Mfg. Co., Me.	100	90¼
Jackson Co., N. H.	1000	985
Lancaster Mills, Mass.	100	92
Lawrence Mfg. Co., Mass.	100	151¾
Lockwood Co., Me.	100	97
Lowell Bleachery, Mass.	100	125
Lowell Hosiery, Mass.	100	40
Lyman Mills, Mass.	100	120
Massachusetts Cotton Mills, Ga.	100	93⅛
Massachusetts Cotton Mills, Mass.	100	116
Merrimack Mfg. Co., com., Mass.	100	30⅛
Merrimack Mfg. Co., pfd., Mass.	100	85
Middlesex Co., Mass.	100	58½
Monadnock Mills, N. H.	100	100
Nashua Mfg. Co., N. H.	500	650
Naumkeag Steam Cot. Co., Mass.	100	172
Newmarket Mfg. Co., N. H.	100	95
Otis Mfg. Co., Mass.	1000	1852½
Pacific Mills, Mass.	100	107
Pepperell Mfg. Co., N. H.	100	305
Plymouth Cordage Co., Mass.	100	228
Salmon Falls Mfg. Co., N. H.	300	150
Shaw Stocking Co., Mass.	100	75
Suncook Mills, N. H.	100	20
Thorndyke Mfg. Co., Mass.	1000	1305
Tremont & Suffolk Mills, Mass.	100	100
Waltham Bleachery & Dye Works, Mass.	100	145
York Mfg. Co., Me.	100	85

SOUTHERN MILLS

	Bid.	Asked.
Abbeville	85	100
American Spinning Co.	155	...
American Spinning Co., pfd.	100	...
Arkwright Mills	...	100

ELM CITY COUNTER



registering the number of sweaters turned out on a

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The Counter is easily attached and keeps accurate record of the machines output. Our Counters are adaptable to all purposes and are extensively used for counting yards, picks and other units in textile manufacture.

They Save Waste, Prevent Errors and Disputes

We have a variety of Counters for textile mill uses.

The C. J. ROOT CO. . BRISTOL, CONN.

Ask for "Catalog 18."

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High Grade
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MAKING A SPECIALTY OF
SOFT IRON
guaranteed to be easily machined.

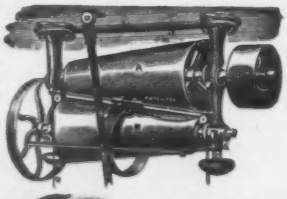
Castings Sand Blasted or Tumbled, as desired.

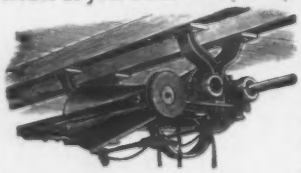
Write for particulars and estimates.

Variable Speed Countershafts

The Evans Friction Cone Pulleys will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.

They are guaranteed to do your work.





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EVANS FRICTION CONE COMPANY
G. Frank Evans. Newton Center, Mass.

Aragon, com.	59	...
Avondale	120	126
Arlington	130	...
Brogan Cotton Mills (new series)	...	81
Brookside	...	...
Cannon	150	...
Cabarrus	120	...
Chadwick-Hoskins	...	...
Chadwick-Hoskins, pfd.	...	101
Chiquola Cotton Mills, pfd.	80	...
Clifton, com.	80	...
Clifton, pfd.	96	100
Clara	100	...
Cliffside	190	...
Columbus Manufacturing Co.	...	85
Darlington	75	83½
Drayton	29	...
Erwin, pfd.	...	105
Easley	...	185
Exposition	...	210
Florence	125	128
Gaffney Manufacturing Co.	59	...
Gibson, com.	109	110
Gluck	...	100
Graniteville, S. C.	140	152
Grendle	...	96
Glenwood	...	150
Glen Lowry, pfd.	...	76
Highland Park	200	...
Highland Park, pfd.	102	...
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	117
Inman, com.	...	108
Inman, pfd.	...	100
Kesler	140	165
Lancaster Cotton Mills	130	...
Lancaster Cotton Mills, pfd.	96	...
Lanet	...	112
Laurens	127	136
Lockhart, S. C.	...	72½
Loray Mills, pfd.	...	86
Modena	...	150
Mollohon	...	101
Monarch, S. C.	115	...
Newberry	125	...
Norris Mills	...	121
Ninety-six	130	140
Orr	...	86
Ozark	100	110
Parker Mills, com.	7	...
Parker Mills, pfd.	30	...
Parker Mills, guar.	...	88½
Pacolet Mfg. Co., com.	...	108
Pacolet Mfg. Co., pfd.	100	...
Patterson	129	...
Pelzer Manufacturing Co.	125	164
Piedmont Manufacturing Co.	150	167
Pell City, Ala.	...	80
Poe, W. F., Manufacturing Co.	100	103
Riverside Manufacturing Co.	...	78
Salisbury	150	...
Roanoke Mills	...	155
Saxon	114	...
Spartan	100	...
Toxaway	...	78
Union Buffalo, 1st pfd.	34	51
Union Buffalo, 2d pfd.	...	10
Warren Mfg. Co., com.	78	...
Warren Mfg. Co., pfd.	...	107

Washington Mills	7	...
Washington Mills, pfd.	100	...
Woodside Mills Co., com.	...	38½
Woodside Mills Co., pfd.	...	80
Woodside Mills Co., guar.	...	101
Watts	...	85
Williamson	...	125
Ware Shoals	70	...
Whitney	110	120
Wiscasset	140	150
Woodruff	...	107
Woodlawn	120	126
Young Hartsell	70	...

MISCELLANEOUS.

Maryland, Baltimore. Lion Bros. Company, manufacturers of embroideries at 33 S. Poppelton St., will build an addition, 28 by 50 feet, to provide more manufacturing space. The New York office is at 200 Fifth Ave.

New Jersey, Paterson. Changes being made in the Paterson branch of the United States Conditioning & Testing Company, New York City, previously noted, provide for the expansion of this branch from a sampling and receiving office into a fully equipped conditioning house. They will be prepared to make tests in the Paterson branch in August.

New Jersey, Paterson. The Globe Dye Works located in the Gun Mill, dyers and bleachers of cotton yarns and artificial silk, have purchased the equipment of Laube Bros. and are extending their plant. They contemplate a further extension later on.

New York, Brooklyn. A new company has been organized under the name of the Sanitary Cotton Products corporation, with capital stock of $300,000, to manufacture absorbent cotton and ramie goods, gauze, and sanitary napkins, and will establish a plant in the Bush Terminal Buildings in South Brooklyn. Henry E. Fanshawe, president of the Metal Novelties Corp., N. Y., is president; Victor E. Freeman, president of the Freeman-Sumner Co., N. Y., is vice-president; Ernest Sumner, treasurer; and David V. Sutton, secretary. Mr. Fanshawe and Mr. Freeman with Webb Floyd, of Messrs. Stephen M. Weld & Co., N. Y.; William St. John, of the Safety Car Heating & Lighting Co., N. Y.; and A. Bennett Aldrich, 160 Broadway, N. Y., form the Board of Directors. James Chittick, 122 E. 25th St., N. Y., is the consulting expert, and Frank Sutton, 80 Broadway, N. Y., is the consulting engineer. It is expected the production of goods will begin October 1. The plant will be operated by steam and electric power, and the product will be sold direct. The New York office of the company is in the Everett Bldg., 4th Ave. and 17th St.

Ohio, Carthage. The Union Thread Company is contemplating the erection of a 3-story addition, 25 by 40 feet.

Pennsylvania, Lewisburg. The Shea Linen Company, which began the manufacture of linen yarns in May, using the old mill of the Lewisburg Woolen Company, has shut down and J. W. Shea has returned to Mays Landing, N. J. The business was largely an experiment.

Wrisley's Soaps

For All Textile Purposes

All of our Textile Soaps are scientifically compounded of best possible selected ingredients. They are

GUARANTEED ABSOLUTELY PURE AND PRICES RIGHT

and every lot thoroughly tested before leaving our plant. Write for samples and prices, stating kind desired.

ALLEN B. WRISLEY CO.

Textile Dept.
Chicago, Ill., U.S.A.

New Bedford Textile School

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Instruction given in the theory and art of cotton manufacture in all its branches.

The school has one hundred ten machines for instruction purposes in carding, spinning and weaving departments; seventy in knitting department, the most complete department of the kind in equipment and scope of instruction in this country; twenty-seven machines in machine shop; thoroughly equipped departments in chemistry and dyeing, in designing, and mechanics.

Every instructor a man of broad experience and training.

Fourteenth year. Many graduates filling positions of trust and responsibility. Catalogue sent free on application. Address,

William E. Hatch, Pres., New Bedford, Mass.

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Taunton-New Bedford Copper Co.
New Bedford, Mass.

OUR GUARANTEE:
SUPERIOR QUALITY PROMPT SHIPMENTS

MISCELLANEOUS.

Pennsylvania, Philadelphia. Harry J. and Ernest Schwehm, both connected with John M. Schwehm's Sons, manufacturers of hair cloths, silk linings and upholstery fabrics on Wister St., Germantown, and Gustav Goldman are applying for a charter for the Reinfel Manufacturing Company, which will manufacture a line of felt products for the clothing trade. The company will have a capital of $25,000; H. J. Schwehm, president; E. S. Schwehm, treasurer; and Gustav Goldman, secretary and manager. At this time the company is unable to state where the plant will be located or the amount of its equipment.

*Pennsylvania, Philadelphia. Contract for the factory buildings to be erected for the Hellwig Silk Dyeing Company has been awarded to Ketcham & McQuade.

Pennsylvania, Philadelphia. The Industrial Dyeing & Finishing Works are making some alterations in their buildings besides constructing an extension.

Pennsylvania, Philadelphia. Confining a recent report made by us, the contract for the new building to be erected for the J. Sullivan & Sons Mfg. Co. at 9th and Susquehanna Ave., has been given out and the operation will be started at once. The building will be five stories high, of brick and reinforced concrete, 50 by 208 feet. They are manufacturers of narrow fabrics.

Pennsylvania, Philadelphia. Joseph R. Foster & Sons, Second and Lippincott Sts., through W. E. S. Dyer, textile mill expert and engineer, have contracted for the erection of a 1-story brick building, 56 by 141 feet, and a 3-story brick building, 53 by 56 feet, slow burning construction, to be used as additions to their large dye and finishing plants.

Rhode Island, Providence. The Franklin Process Company are just completing the installation of additional winding and dyeing machinery which will increase the production of the plant twenty-five per cent.

FAILURES AND SUSPENSIONS.

Pennsylvania, Philadelphia. Theodore C. Search, president of the Cold Springs Bleachery & Finishing Works, bleachers and finishers of cotton fabrics at Yardley, Pa., has been appointed receiver for the corporation. This action was brought about through a suit by one of its creditors on a claim of $4,540.46. The liabilities of the concern are said to be $44,000, of which $26,000 is due on promisory notes and $18,000 on accounts payable. The reason for the failure is given as lack of working capital and the company overreaching its resources in expending $250,000 for improvements. The creditors, in their application for a receiver, stated that the business should be continued as a going concern. The Philadelphia offices of the company are located in the Arcade Building, 15th and Market Sts.

The WM. H. LORIMER'S SONS CO.,

MERCERIZERS AND DYERS

Manufacturers of

MERCERIZED YARNS

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Skeins, Cones, Tubes and Warps

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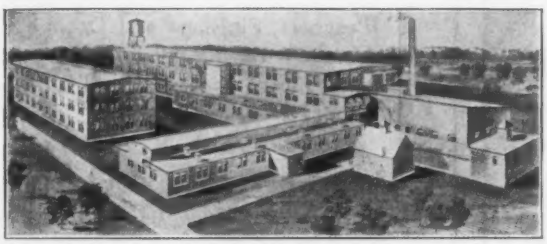
HOME BLEACH AND DYE WORKS, Inc.



DYERS, BLEACHERS AND MERCERIZERS OF

COTTON YARNS

IN SKEIN, AND LONG AND SHORT

CHAIN WARPS

FAST COLORS A SPECIALTY

Daily Capacity 20 Tons

FAST COLORS AND BLACK FOR WORSTED TRADE

Office and Works, Pawtucket, R. I.

ESTABLISHED 1861

GLOBE DYE WORKS CO.,

Successors to R. Greenwood & Bault

DYERS BLEACHERS AND MERCERIZERS

OF COTTON WARPS AND SKEIN YARNS

Globe Bleach and Dye Works, Oxford and Worth Sts., Frankford, Pa. 140 Chestnut St., Philadelphia

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English Calender Roll Papers

For Embossing and Other Calenders.

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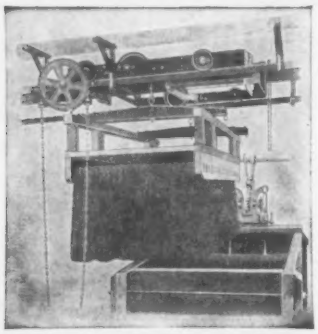

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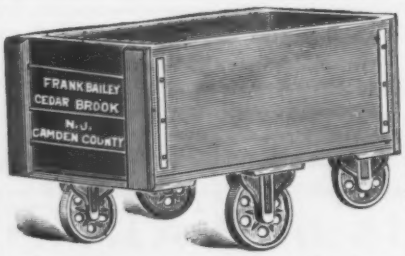

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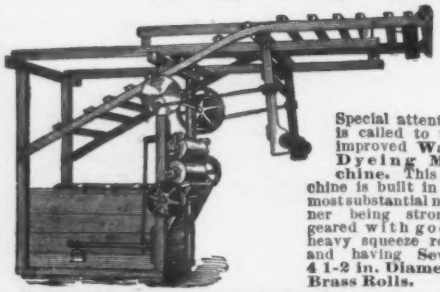

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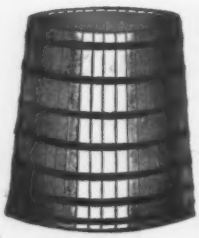

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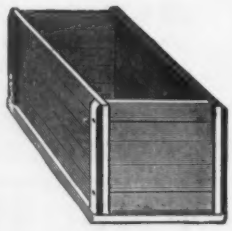

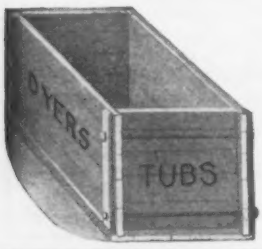

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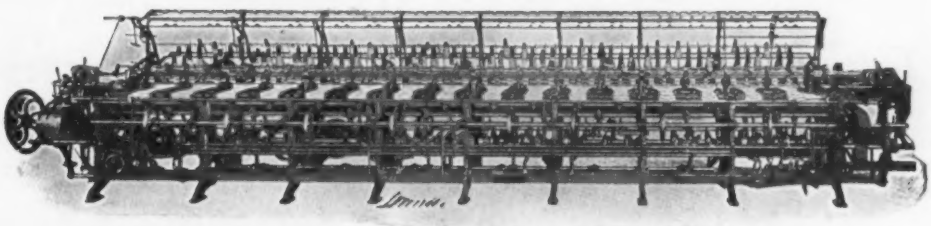

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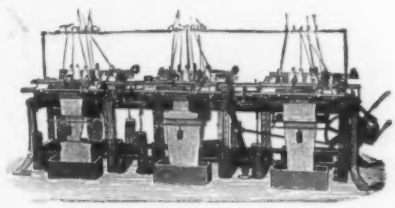

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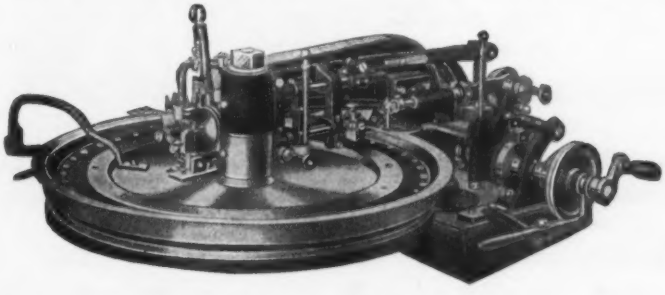

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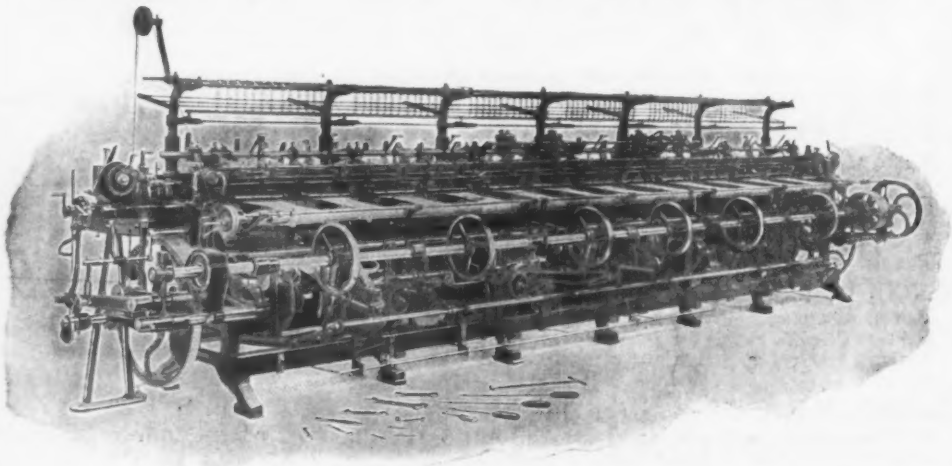

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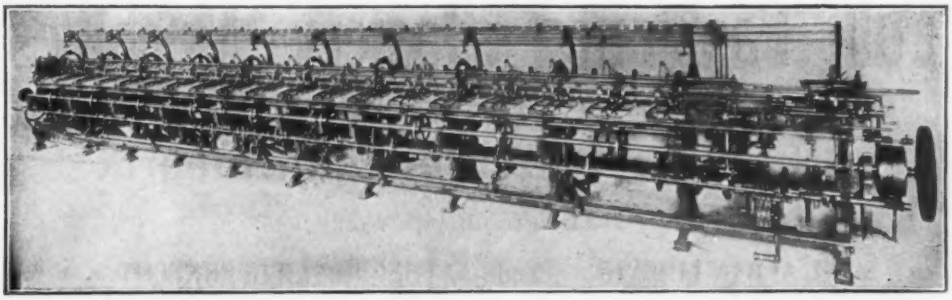

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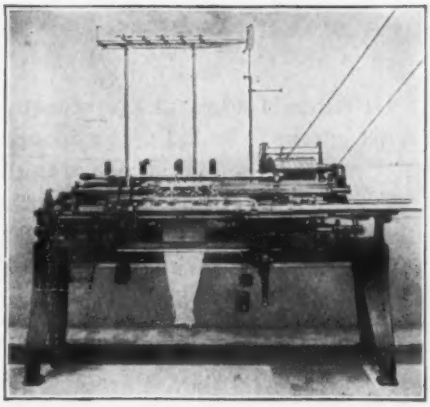

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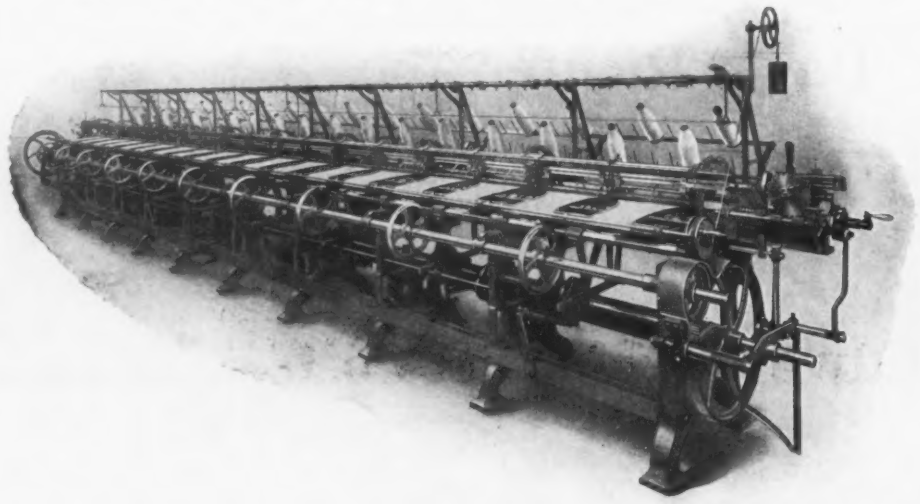

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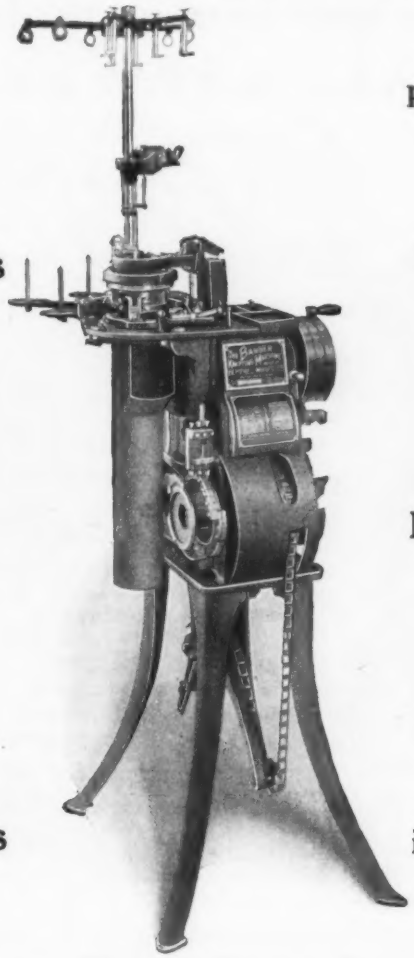

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Automatic Transferring Device

New and *Novel* Device for High Splice and Double Sole Slackening

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of the

WILDMAN RIBBERS

are sometimes overlooked

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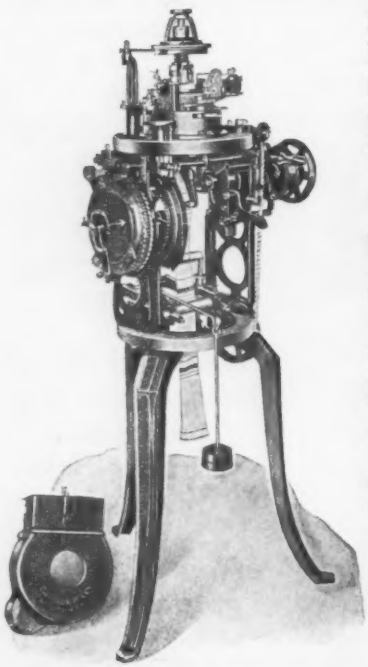

Accuracy. For which Wildman workmanship is justly noted. Benefits of this arise from features too numerous to mention. Many of the surfaces are ground.

Durability. The Wildman ribbers undoubtedly have more hardened parts than any other ribber. Welt levers, take-up worms, etc., outwear similar devices.

Design. The Wildman ribber is the only one with a dogless attachment. The advantage of maintaining the position of the dial needle between the cylinder needles by positive mechanical means instead of pressure on the cloth are too numerous to mention.

Reliability. The Wildman ribber stop motion has never been equalled. The brake matches it. The welt lever motion is positive and sure.

General Features. The Wildman ribber is the only one with a chainless pattern mechanism, the popularity of which is a sufficient recommendation. The power transmission provides a quick stop and a gentle start. The two speed drive is supplied if desired. The Wildman automatic striper has no peer.

There are many other advantages worthy of investigation. Investigate in your own interest.

The Science of Knitting. A pocket text and reference book for everybody concerned with knitting, sent postpaid on receipt of $3.00

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Established 1889

NORRISTOWN, PA.

Trade Mark

A New "Union Special"

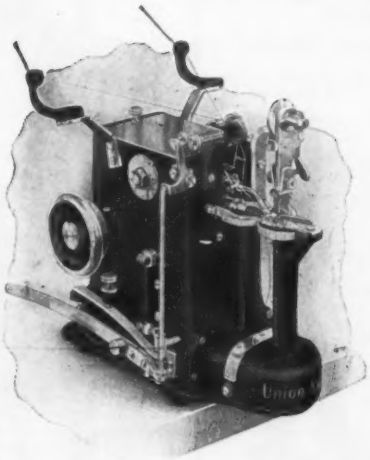
Cup Feed Machine for Seaming Selvage Edge Hosiery

Quiet, Light Running, High Speed

Double Thread Interlock Seam
perfectly flat and non-irritating

Ends of Seams Locked
giving looper finish

Finest Gauge Silk Fabric
To heaviest cotton hose seamed with equal facility



Improved Adjustable Uncurling Device
insuring perfect seam

Both Feeding Cups Actuated
insuring positive feed upon both selvages, avoiding puckered seam

Quickly Adjustable Stitch Regulator
without interchanging parts.

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BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

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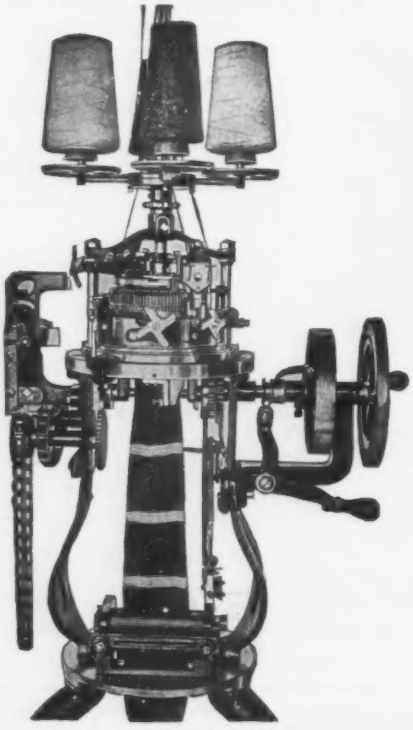
Established 1870 LAKEPORT, N. H. Incorporated 1890

Spring and Latch Needle Machines

for Both Rib and Plain Work
Economically Producing
A GREAT VARIETY OF FABRICS



IMPROVED AUTOMATIC TOQUE MACHINE

Made in sizes from 5″ to 7″ inclusive, of any desired gauge; these measurements being back to back of cylinder needles.

These machines are built in a thorough and workmanlike manner and are second to none in the market.

The Crawford stop-motion is applied when requested

SOME CRANE FEATURES.

Patent removable hardened Wing Burr Wheels.
Patent Thread Stop Motion can be fitted to 20 in. and 40 in. frames and are specially adapted for making fine Jersey Cloth and Stockinet.
Our flat machine is adapted for knitting collarettes.

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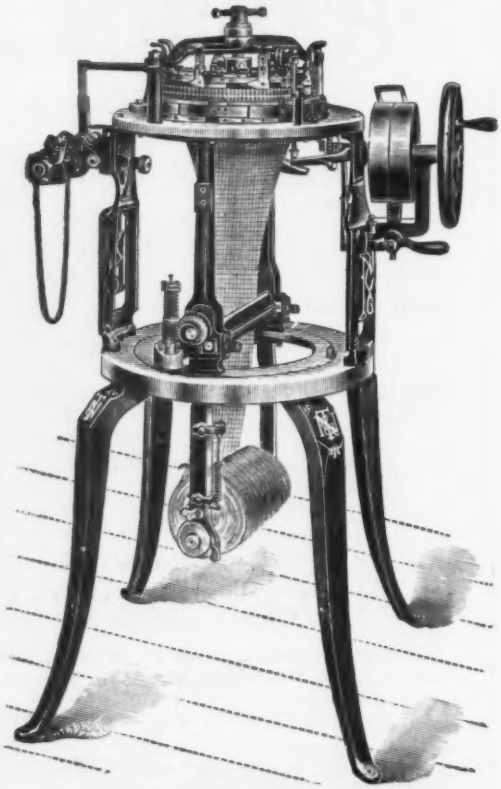

Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS

Quality of Fabrics and Production
UNEXCELLED

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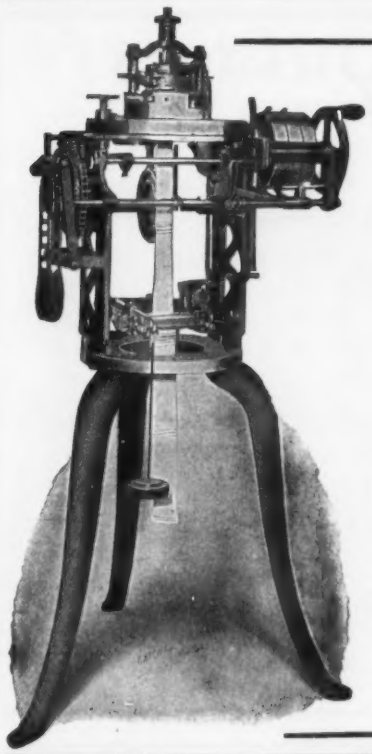

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BUILDERS OF

Circular Knitting Machinery

of every kind for every purpose

HOSIERY RIBBERS

with Splicing, Striping, Two-speed, Selvage Welt and French Welt Attachments.

Full Automatic Hosiery Footers

BODY MACHINES, SLEEVERS, etc.

for Underwear, Sweaters, Toques, etc.

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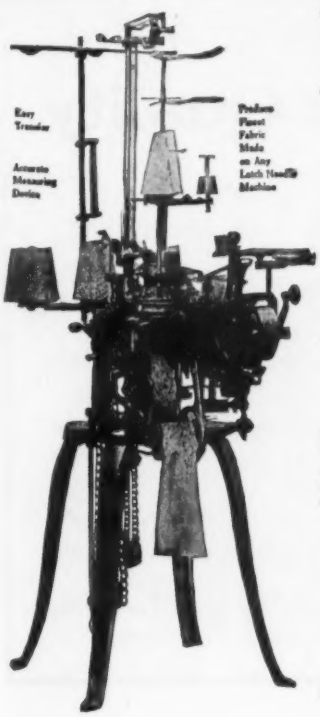
for making all kinds of tubular knitted scarfs.
Write for catalog, prices and samples.



What Knitters are Saying About the "P.& O." Machine

"We are running this machine beside another popular knitter on silk and art silk plaited hosiery. On the 'P. & O.' machine we are making less menders, a more even fabric and bigger production. In fact it is the best machine we have in our mill."

SAVES 10% ON YARN

Makes Ladies' or Half Hose; garter top; no ravel, silk plaited or mercerized leg; high splice, double sole; advanced toe; linen or mercerized heel and toe.

Write for full particulars

PAXTON & O'NEILL

541 N. THIRD ST., PHILADELPHIA, PA., U. S. A.

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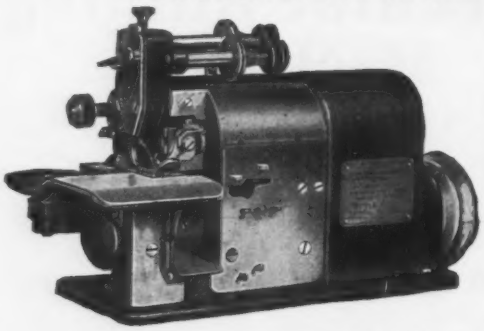
FAST
DURABLE
Light Running

High Speed Overseaming, Overedging and Shell Stitch Machines are



OUR CLASS 60 MACHINES for Trimming and Overseaming in one Operation produce the strongest, best Seams and do it with the greatest economy.

USE STYLE 18 for Horse Blankets.
STYLE 17 B or 22 for Bed Blankets.
STYLE 35 E SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. 467 Broadway, cor. Grand St., N. Y.
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Imported Knitting Machines of Quality

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FULL FASHIONED MACHINES. "System Cotton" for plain and ribbed Hosiery, Underwear, Gloves and Neckties.

RIB MACHINES, high speed, for Rib Tops, Neckties, Hosiery in plain, striped and accordion effects.

WARP MACHINES **(150 COURSES PER MINUTE)** for Tricot Fabrics.

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WARP MACHINES, for Elastic Hat Bands, Mourning Bands, Shawls and Scarfs.

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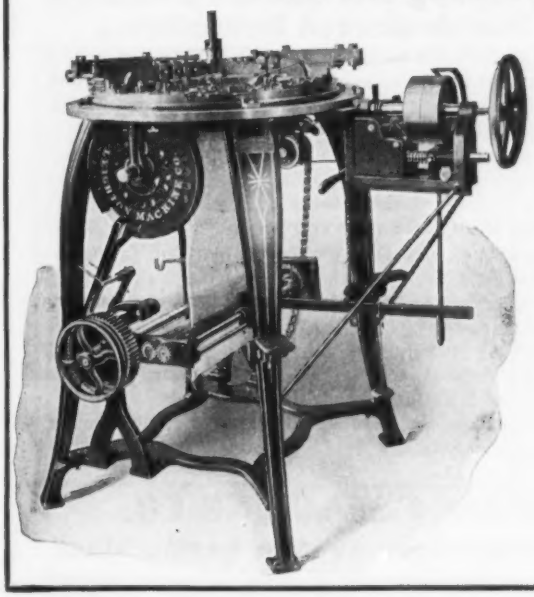
THE LEIGHTON KNITTER

HAS EARNED THE REPUTATION OF PRODUCING



Firm, Elastic Garments

USING LOW GRADE STOCK

THESE MACHINES ARE BEING USED FOR

High Grade Goods

MORE AS COMPETITION INCREASES

Real Efficiency

Means Excellent Stitches with ECONOMICAL OPERATION

For Particulars ask

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Manchester, N. H.

John W. Hepworth & Company

N. W. Cor.
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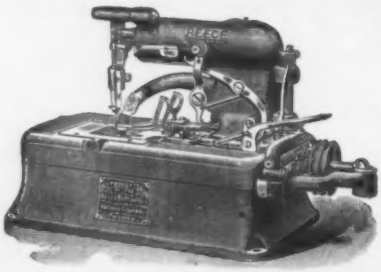
Makers of Two Thread Elastic Lock Stitch Loopers

ALSO ATTACHMENTS for changing our single stitch loopers into the two-thread loopers.

The Reece Button-Hole Machine



For Cutting and Stitching Straight Double-Barred Buttonholes

This machine is designed for cutting and stitching straight double-barred buttonholes without eyelets, from ⅛ of an inch in length up to 1 inch, in knit goods, shirts, shirtbands, collars, cuffs, etc., also on knit goods of all kinds. It is superior to all other machines, as it is the *only single thread* buttonhole machine on the market doing away with the bobbin or under thread, thereby making a great saving in the use of thread, and *it will produce more than double the quantity of work of any other machine*, thus saving the employment of an extra operator and the space of an extra machine. The quality of the work produced is superior to any other buttonhole, from the fact that the stitch is elastic, which is an important factor in knit goods. This machine is automatic in all its movements, and is an easy machine to handle, and does not require the services of a skilled operator, no cutting or pulling of the thread required, and when the buttonhole comes from the machine, it is finished in every respect and does not require to be trimmed or cut. The length of hole required can be obtained by simply turning a screw.

The machine is made of hardened steel drop forgings, thus reducing the breaking and wearing of parts to a minimum. *Samples of work and terms sent on application.*

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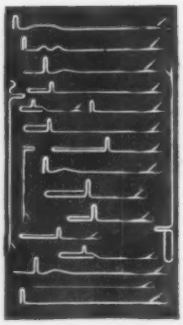

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Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder, **Spring Needle Cylinder Rib-Top Machines** for making Cuffs, Drawer Bottoms and Shirt Borders. **Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, etc.**

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$10,000,000.00

DO YOU WANT?

About $10,000,000.00 worth of full fashioned stockings are made in America each year.

No matter what proportion of these millions you are now getting, you can get more of it if you will make full fashioned hosiery on our machines.

Because, the stockings you make will fit perfectly and bring you repeat orders.

The leading hosiery manufacturers are installing these machines.

If you are thinking of making full fashioned goods take up the question with us—as our success depends upon yours, we will prove to you that we can help you before you spend a cent.

TEXTILE MACHINE WORKS

READING, PA.

THE MAKERS OF AMERICAN FULL FASHIONED HOSIERY MACHINES

JAMES TAYLOR, 216 N. Front St. Philadelphia, Pa.

ALL KINDS OF NEW AND SECOND HAND **KNITTING MACHINERY**

A RARE OPPORTUNITY TO BUY

10 Lamb & Grosser Sweater Machines.
3 Large Crawford Hollow Plate Presses.
1 Allen 40 Spindle Cop Winder.
54 Standard "B" Knitters for sizes.
24 Mayo "Acme" " " "
2 Complete Hosiery Plants.
1 Boomer & Boshert Cold Press.
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500 Dozen Hosiery Shaping Boards.
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1 Complete Plant for Mfg. Hosiery
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1 Singer Nat. Button-hole Machine.
500 Payne Winder Bobbins.
100 ¾ Aut. Knitters, various makes and sizes.
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50 Loopers and Seamers, all makes.
60 Ribbed Underwear Machines.
100 Hosiery Ribbers and Sleevers.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY

We are always in the market to buy good Second-Hand Knitting and Finishing Machinery.

THE MOST COMPLETE LINE OF

Sweater Coat Machines

Automatic Racking Machines with or without striping attachments.
Herring Bone Stitch Coat Machines.
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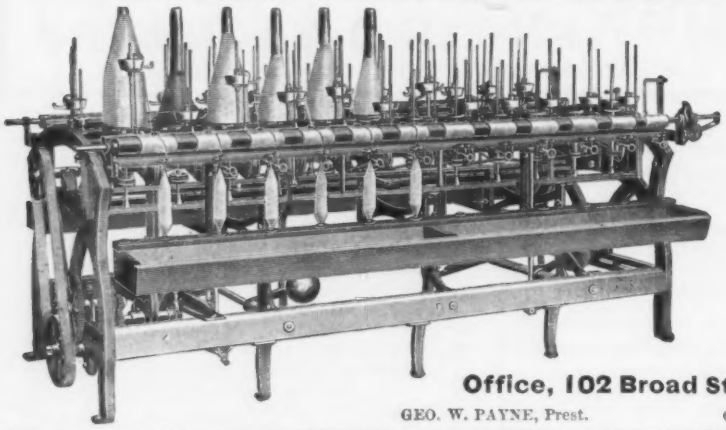
OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin



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Upright Spoolers

To Spool from Cop, Skein or Bobbin

Doubling Spoolers for doubling 2, 3 or more ends into one

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler Guides, Bolsters and Stops Made and Repaired at Short Notice.

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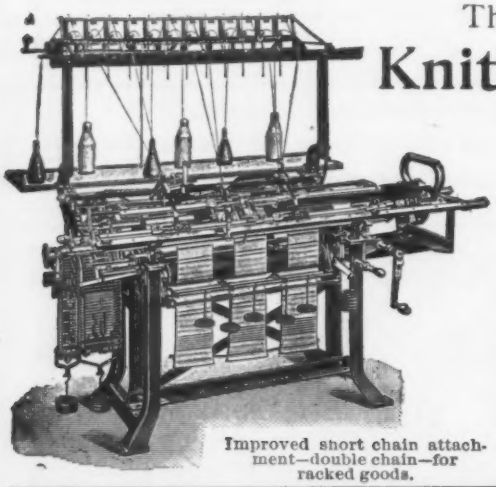


Improved short chain attachment—double chain—for racked goods.

That is the Brand of the

Knitting Machines

worldwide known to be **The Best**

160,000 Knitting Machines in use all over the Universe

CLAES & FLENTJE

Muhlhausen Thr., Germany

(Largest Knitting Machine Factory in the World)

The cut represents one of our full automatic machines with double chain, short chain attachment, doing away with the long chain and lots of blocks.

Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

For full particulars, needles and supplies for all kinds of knitting machines, write to

Ainslie Knitting Machine Co.

281 Ainslie Street **Brooklyn, N. Y.**

We Are the Oldest Manufacturers

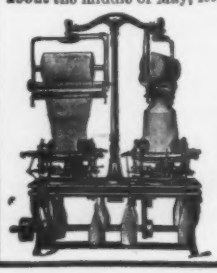
IN THE WESTERN HEMISPHERE

Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.

New Jersey Wire Stitcher

Highest Grade

Machine for rapid and Economical Method of Attaching Labels to Hosiery or other Garments.

Uses pointed staples, cannot tear the finest fabric.

Send for Catalogue

J. L. Shoemaker & Co.

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STANDARD "G"

¶ A New Type of Hosiery Machine—being the result of 22 years of actual experience in studying the needs of the trade.

¶ Your investigation desired.

¶ Can be seen running at all times.

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"ACME"
Hosiery and Textile Binder
No. 30

A Simple, Inexpensive Machine for Attaching Tickets on Hosiery, Underwear, etc.

It uses a pointed staple, **CANNOT INJURE THE FINEST SILK HOSE**; can be set aside when not in use.

Is operated by foot power and has a **patented WORK-HOLDING DEVICE carrying one dozen or more pairs of hose, keeping them in perfect alignment and presenting the tops in position to receive the tickets AT LEAST TWENTY-FIVE PER CENT QUICKER** than by any other method now in use.

For particulars and the address of the nearest agency

Apply to the Manufacturers

The Acme Staple Company

Camden, N. J.

The "1912" Cloth Cutting Folding and Winding Machine.

This machine will cut down operating expenses. It does in one operation the work which is now being done in two. It cuts the cloth, folds the edges and rolls them up in one operation, and at all times gets one more strip out of a bolt of cloth than is possible with the old method of cutting. At the same time it measures the bolt of cloth to show the manufacturer whether or not he is getting the number of yards he is paying for. With the high price of cotton to-day every knit goods manufacturer ought to look into this to see if he is getting the maximum efficiency at the least expense. You will find when you come to figure it up in the course of a year that the labor it saves is a big item.

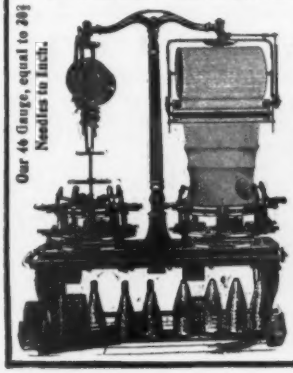
Also have other labor-saving devices, and upon application you can get prices and full information on same.

Joseph A. Firsching, 614 Broad Street Utica, N. Y., U. S. A.

We are the Oldest Manufacturers

WITH

45 YEARS PRACTICAL EXPERIENCE



in building Spring Needle Knitting Machines. Have succeeded knitting the finest and the coarsest work ever made on Spring Needle Knitting Machines in this country, any work from 3 to 46 gauge. Our Machine is of the highest class.

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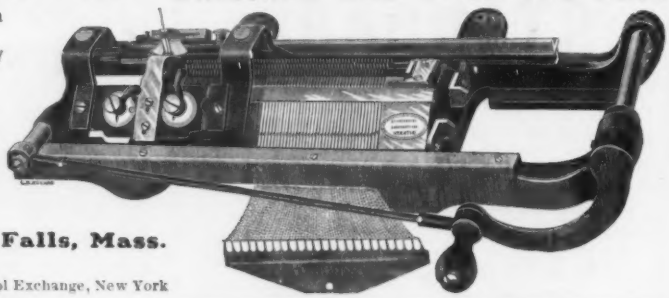
ORIGINAL AND STILL THE BEST

Most widely used; being operated in every civilized country.

Our Collarette Knitter Knits almost any conceivable style and with selvage ends.

Circular Rib Top and Seaming Machines.

Send for Prices and Catalog.



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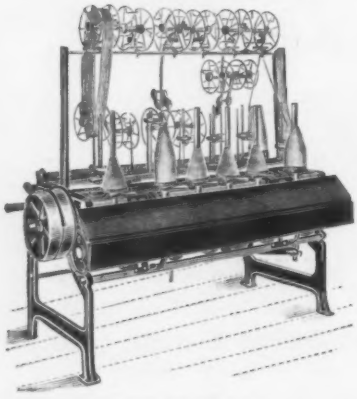


6 SPINDLES UP

The best winder on the market. If you are not using one or more try one.

The New Boss Seamless Knitter

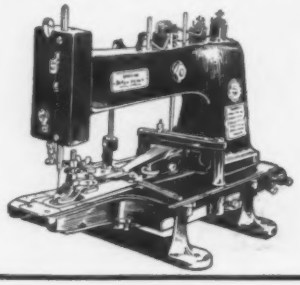
Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
Cor. Elm and Reed Sts., Reading, Pa.

BUTTONS PUT ON TO STAY ON

No bobbins to wind. *Will sew all buttons with any thread.* *No threads to trim.* *Saves 90% of the needle breakage.*



Elastic Stitch Button Sewing Machine

saves money for manufacturers, and helps them increase the demand for their products. Without increasing the expense to the manufacturer, the Elastic Stitch Button Sewing Machine sews buttons on garments in such a way as to allow for thread shrinkage and to stand the wear and tear of the laundry, as well as giving to the buttons the same uniform finish that the tailor would give, and avoiding, as the tailor does, the drawn down, tight effect that is unavoidable when a two thread machine is used.

Send for proof and "List-of-Users" booklet.

Union Button Sewing Co., Dept., Frederick Osann Co.

394 Atlantic Ave., Boston, Mass. 245 Seventh Ave., New York City

Agents Everywhere

"Acme" and "Hemphill"

SEAMLESS HOSIERY

Knitting Machines

built by

Acme Knitting Machine & Needle Company

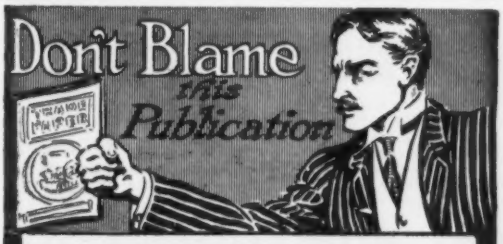
FRANKLIN, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers Like our Latch Needles

because we make a superior grade of needles

Philadelphia Office, Bourse Bldg.



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Full Automatic Knitter

Revolving Needle Cylinder

Six Yarn Fingers

Plating

High Spliced Heel

Double Sole

Machine only 18 inches wide

Fabric Take-up

Transferring of ribbed tops without dropped stitches

Jenckes Quality Fabric

Jenckes Knitting Machine Co.

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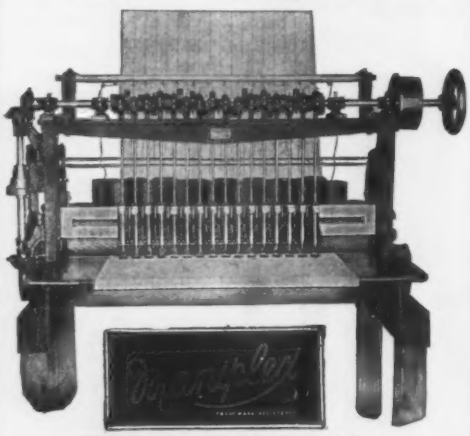

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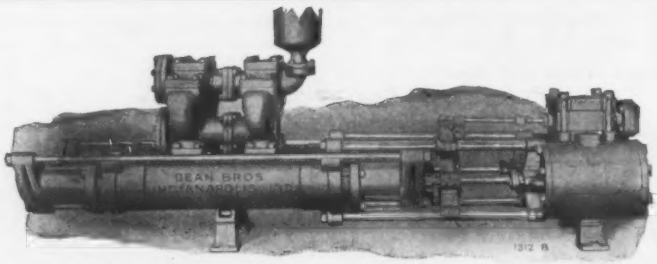

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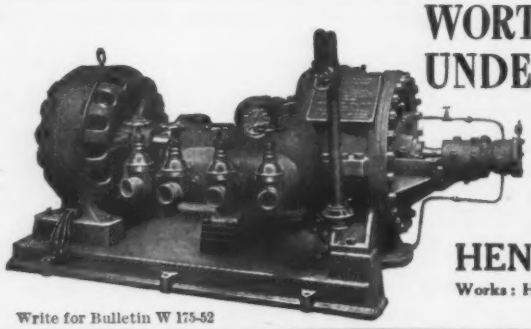

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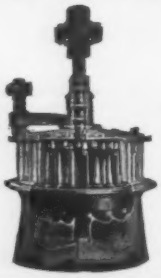

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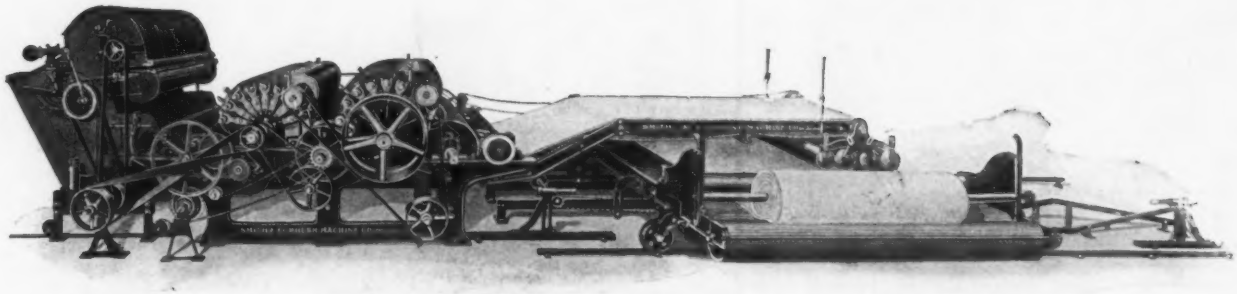

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We build a complete line of machinery for manufacturing felt for mattresses, comforts, upholstery work, etc., also for small rolls of commercial batting.

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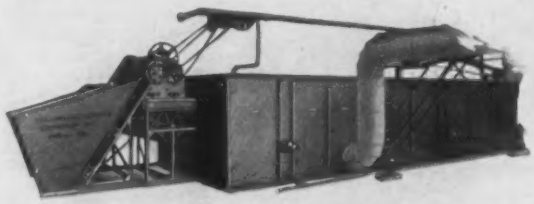

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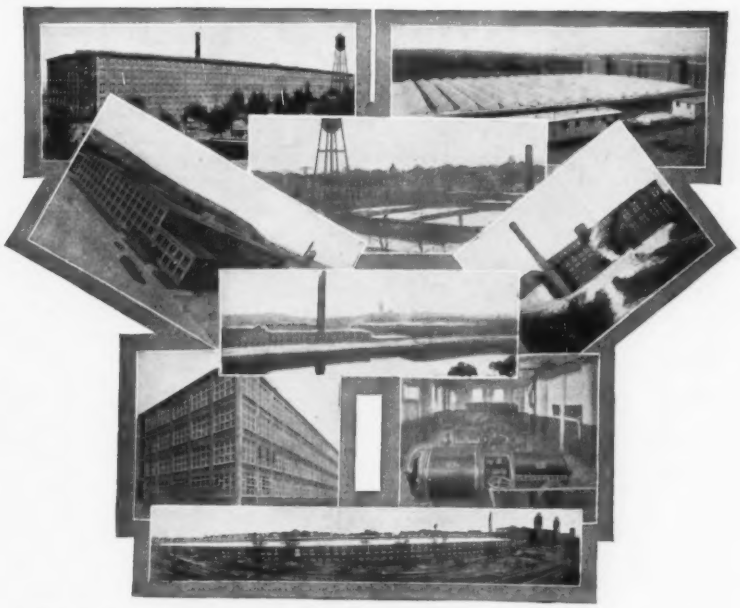

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Name of Company	Electric Power	G-E Equipt. Used	Name of Company	Electric Power	G-E Equipt. Used
Naumkeag Steam Cotton Mills	Yes	Yes	Hope Webbing Co.	Yes	Yes
Pacific Mills	Yes	Yes	Lincoln Mill	No	No
Riverside & Dan River Mills	Yes	Yes	Crystal Spring Bleachery	Yes	No
Ludlow Mfg. Associates	Yes	Yes	Sterling Mills	Yes	Yes
Erlanger Cotton Mills	Yes	Yes	Columbus Mfg. Co.	Yes	Yes
Woodside Cotton Mills	Yes	Yes	Cleveland Worsted Mills	No	No
Lancaster Cotton Mills	Yes	Yes	Saxonia Dress Goods Co.	Yes	No
Virginia Cotton Mills	Yes	Yes	Chalmers Knitting Co.	In part	No
Dixie Cotton Mills	Yes	No	H. C. Aberle	Yes	Yes
Andrew McLean Co.	Yes	Yes	Moorhead Mills	Yes	Yes
Cosmos Cotton Co.	Yes	Yes	Sterling Knit Goods Co.	Yes	No
Lonsdale Mfg. Co.	No	No	Potter Knitting Co.	Yes	No
Empire Cotton Co.	Yes	Yes	Whitehead Hosiery Mills	Yes	Yes
			Russell Mfg. Co.	Yes	Yes

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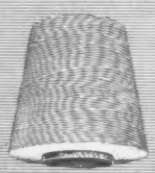

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